MANIFESTATION OF THE VISUAL LEFT-RIGHT IMBALANCE PHENOMENON IN THE PERCEPTION OF SELECTED ADVERTISEMENTS

Thesis for the Degree of M. A.

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MANTHA S. VLAHOS

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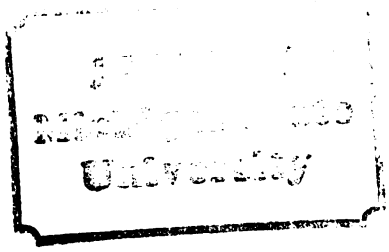
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ABSTRACT

MANIFESTATION OF THE VISUAL LEFT-RIGHT IMBALANCE PHENOMENON IN THE PERCEPTION OF SELECTED ADVERTISEMENTS

by

Mantha S. Vlahos

The problem was to determine if the left-right imbalance in the visual field phenomenon occured in the viewing of certain advertisements where there was a combination of both verbal and non-verbal material presented. The method used for this was the method of tachistoscopic presentation. A classical factorial design experiment conducted on forty subjects with 2 x 2 x 2 treatments was employed to block for possible effects from eye dominance and the illustration and copy perception scores.

Perception scales were established to quantify results from open-ended questions on the extent of perception. Results were analyzed at the .05 level of significance. Since all statistical tests (t and U tests) conducted showed no significant differences between right and left treatments, it was concluded that the lateral

location of the sample illustrations does not affect the accuracy of perception. Hence, the left-right imbalance phenomenon is not manifested in this situation. Subjective evaluation of the data indicated that the use of binocular vision, presence of color, degree of familiarity with the ads, and the limitation of the methodology employed may be sources of the variability in perceptual scores.

Accepted by the faculty of the Department of Advertising, College of Communication Arts, Michigan State University, in partial fulfillment of the requirements for the Master of Arts degree.

Kenneth A. Atkin 8-69

Director of Thesis

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I. INTRODUCTION

Need for Research

Little experimentation has been done in the area of consumer perception of advertising messages in the past. For years ad men have learned to design layouts according to certain "principles," such as gaze motion, focal center, etc. These advertising "principles," which are supposed to increase consumer perception of advertising messages, are based on descriptive data with virtually no scientific validation.

In contrast to this, investigations in psychology have ranged from simple observations to sophisticated laboratory experiments. Even though conflicting results have been obtained in regard to physiological determinants of the left-right imbalance phenomenon, researchers agree that this phenomenon does, in fact, exist. The left-right imbalance phenomenon and visual field are defined as follows:

Left-right Imbalance Phenomenon:	phychoperceptual phenomenon where objects viewed by an observer in his left visual field are perceived as

being larger and closer to him than the same objects when viewed in the right visual field.

Visual Field: total aggregate of the stimuli acting on the eye at any given moment; right visual field pertains to all stimuli on the right of the observer's vertical center line, and the left visual field pertains to those on the left.

The Problem

So far, investigators have used nonverbal material, such as illustrations, photographic scenes, geometric shapes, or verbal material (alphabetic letters, nonsense syllables, or words) separately to study characteristics of this perceptual phenomenon. Until the present, neither the verbal nor the nonverbal material has been tested for occurrence of the left-right imbalance phenomenon in a situation where the other is also present.

The purpose of this thesis is to test, by means of tachistoscopic presentation, for the manifestation of this phenomenon in the visual perception of certain color illustrations within single full-page magazine advertisements where a combination of verbal and nonverbal material

appears. The experimenter's hypothesis is that observers will perceive the illustration more accurately when it is on the left-hand side of the page.

II. THEORY

Research on perception has been conducted at two quite different levels. One was the scholarly level of psychoperception, while the other was the descriptive level of advertising. The advertising literature was, therefore, separated from the psychological literature review in the discussion of theory in this study. This study focused on the psychological theory, so a science versus art approach to theory was utilized.

Initial to a study in the area of perception, is the definition of perception. In Advertising, W. H. Ittelson and F. T. Kilpatrick (27) define perception as a personal construction based on past experiences and believe it is not an absolute. This basis, then, depends on familiarity, or meaningfulness, as contrasted with the meaninglessness of unfamiliar forms, such as nonsense syllables or nonsense geometric forms.

According to contemporary researchers in the area of psychoperception, perception involves interpretation. Perception theorist, James J. Gibson (19), says that "perception involves meaning; sensation does not.... Sensations are not the cause of perceptions. Having a perception does not entail the having of sensations."

The experience of sensation does not necessarily imply the experience of perception. Therefore, this definition differs from the descriptive one of Ittelson and Kilpatrick where perception is based on past experiences.

S. Howard Bartley (5), a perception theorist in the area of vision, says that perception is the result when a stimulus, or energy impingement, causes a sensation which is interpreted by the organism. He believes that the interpretation is the vital determinant of perception. McKinney (34) defines perception as a learned organization of sensory elements and says familiarity is synonymous with the frequency of previous presentations and subsequent neural firings.

Artists have realized that there are differences between the right and left visual field. Gaffron (18) asked subjects to compare classical paintings with their mirror images. The subjects reported that, under certain conditions, items in the left visual field (dividing the picture vertically up the center line) appeared larger and closer than when they were viewed on the right. Studies, in this area, eventually led to the establishment of the left-right imbalance phenomenon of perception. The theory states that objects in the left visual field are perceived as phenomenally larger and closer than those in the right visual field.

According to the Optical Center Theory, the human

eye sees the optical center as the center of the page. The optical center is defined as the point on the lateral center line which is 5/8 of the distance up from the bottom (point a in Figure 1):

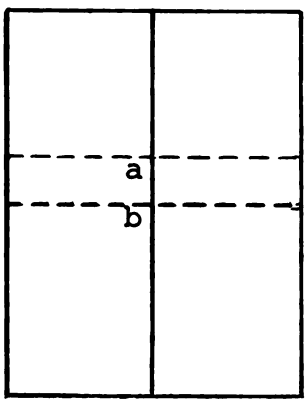


Figure 1.--Optical and Geometric Center

The Committee on Advertising (13) states that the geometric, or actual, center of the area (point b in Figure 1) is the point used to balance the ad elements from side to side.

There are two commonly used forms of balance (30): formal and informal. Formal balance is achieved when the objects on the right and left of optical center are identical and placed opposite each other. Informal balance is where the parts of the ad are "weighted" so that the elements are in balance.

Mandell (33) and others believe the informal balance principle provides balance between the right and left. The weight of the visual impression, according to Sandage and Fryburger (40), is determined by the size,

color, shape, and density of a particular element. For example, large size rather than small size and dark colors rather than light colors appear optically heavier.

Nelson (36) gives what he considers to be a "reasonably universal and inclusive list" of the principles of design for a good layout. Included in these are the principles stating that the design must be in balance and that the space within the advertisement should be broken up into "pleasing" proportions.

The advertising profession does not offer many scientifically validated guidelines for utilizing balance to the advertiser's best advantage. For example, Stanley (41) believes sensitivity to balance can only be achieved by practice and by studying "good examples." Longyear (31) says that art books on the topic of composition should be studied. He further states that professional layout men often violate a basic layout principle to produce a better layout. He implies that one is able to design a good layout only after much experience and that there are basic layout principles.

The layout principles which do exist are not formally set down. Hepner (24) admits that "as in all art, few fixed rules can be offered." He believes an effective layout leads the reader's eyes from the illustration to the headline to the text. Dirksen and Kroeger (14) also discuss the division of the layout space.

Since the human eye has difficulty in obtaining a mental impression of a complete scene at a glance, Dirksen and Kroeger suggest that the units in the layout be located so that they will be seen in the order of importance whenever possible.

Layouts usually have more than one unit. These units may consist of illustrations, headlines, copy, trademarks, signatures, etc. Location of the units usually depends on the order in which the advertiser wishes that they be seen or read. The illustration is often used to attract attention. Albert Frey (17, p. 327) says that almost any picture may serve in this capacity, but there are certain aspects of the layout which may enhance its chances of attracting the viewer's attention.

Mandell (33, p. 443) believes that the decision to use artwork in an ad layout depends on whether the art will serve a purpose, such as attracting attention to the ad, arousing interest in the commodity advertised, showing the product to advantage, emphasizing special values or features in the material of the product, illustrating an idea expressed in the headline, etc. Otto Kleppner (30) says that attention is then gained through such factors as contrast, dominant size, striking design, color, emphasis, distinctive style, etc.

The use of illustrations in advertising has been increasing since 1895 according to a study conducted by

Starch (42). Starch attributes this to the universal language of pictures and their use as attention-getters. Lucas and Britt (32) report that when Gallup made his first readership study of weekly magazines in 1931 ("Factors of Reader Interest in 261 Advertisements," Liberty Magazine, 1932, p. 50), he found that illustrated ads received much more attention than did ads with straight typographical copy.

The Committee on Advertising (13) states that the subject of the illustration may include the product or package alone, or the product or package in a setting which does not distract attention from the product. Dirksen and Kroeger (14) further add that the product should be displayed alone to familiarize the reader with the product so the product will be recognized.

This is important when appearance is a major sales factor; when trying to differentiate a product; and when the objective is to keep the product name before the public. Besides being illustrated alone or in a setting, the product may be shown in use or action, or the result of the product's use may be demonstrated.

Lucas and Britt (32, p. 233) say that whether an ad on the left-hand or right-hand magazine page will receive attention first depends on acquired reading habits, the nature of the magazine, and the direction in which the page is turned.

But what about the differences between the right and left visual fields within an ad or even within the illustration in the ad layout? These differences are being studied by numerous experimental psychologists in the area of visual perception. Lucas and Britt discuss a study done by Stanton (32, p. 234). Stanton attempted to approach natural conditions by making his observations in waiting rooms and public places. He claims that attention was given to the right-hand page rather than the left-hand page in the ratio of 2 to 1, but the present experimenter believes that such a study is extremely unscientific and haphazard. Many of the studies in this area have been done in a careless manner. Some, though, using the experimental method, have noted a perceptual imbalance between objects appearing on the left and those appearing on the right of the vertical center line.

Currently the literature consists mostly of studies which demonstrate aspects of the left-right phenomenon rather than attempt to answer why this phenomenon occurs. Numerous investigators have reported on the ability of subjects to accurately recognize verbal material.

Bryden (11) performed a series of three experiments to investigate tachistoscopic recognition of horizontal rows of geometrical forms and letters. Results

showed that letters and forms were recognized more accurately in the left visual field than in the right when the material was simultaneously exposed in both visual fields. When the forms were exposed successively in one field and then the other, they were recognized equally accurately in each field. The latter confirmed the results of Terrace (43) who had also found that single forms are recognized equally well in the right and left fields when presented randomly in one field or the other.

Herron (25) found that when alphabetical material was presented successively in the right or left field, subjects recognized letters in the right field more accurately. These results were shown to be true for English words by the experiments of Mishkin and Forgays (35). Bryden and Rainey (12) similarly found that the left field is superior when presentation of target stimuli is simultaneous but that the right field is superior when a successive rather than a simultaneous presentation procedure is used. Findings, therefore, indicate that perception of critical objects is more accurate in the left visual field when presentation of target stimuli is simultaneous.

The facts that perception of a critical object is increased as the size of the object is increased (all other conditions remaining constant), and that material in an advertisement is simultaneously exposed in both

visual fields, led to the following hypothesis:

H: Accuracy of perception will be greater when the critical object appears on the left-hand side of an illustration within an advertisement than when it appears on the right.

Harcum (21) tested for differences in perception between the left and right visual fields when redundant stimuli were employed. Conflicting results led him to conclude that his evidence was inconclusive. Wingfield (44) investigated response hierarchies in object identification and found that response latencies are approximately the same for common and rare objects. This seems to imply that the response latency does not vary because of the degree of familiarity. Therefore, response latencies were not measured in the present study.

Some investigators feel that reading experience of different cultures is a determinant of the left-right imbalance phenomenon. Orbach (37) is one of these investigators. He tested subjects who were bilingual in English and Hebrew with verbal material to show that this type of material is more accurately recognized when presented in the right visual field than in the left (when presentation of stimuli is successive in the two fields). Those who had learned to read English (left to right) before Hebrew were more accurate in recognizing stimuli in the right visual field. Those who had learned to read Hebrew

(right to left) first were more accurate in recognizing stimuli in the left visual field.

Forgays (16) has found that right-left differences do not appear until after the fifth-grade level of reading ability has been reached.

Therefore, whether a subject reads from right to left or left to right may influence the outcome of an experiment. In the past, studies used only words or only pictures as target stimuli. There may even be different focal points for subjects depending on their culture. For example, the movement toward the left is one of the strongest ocular tendencies of Western people. This may account for the difference in perception between left and right fields. For this reason, only Western subjects were used in the present study.

Besides reading experience, numerous other intervening variables may influence results. The subject's age and sex are two such variables. Karp (28) took three age groups of people: one of 17 year olds; one of 30-39 year olds; and one of 58-80 year olds. These groups were then subdivided into males and females. Results indicated that field independence decreases significantly with age. The 17 year old and 30-39 year old groups showed males to be significantly more field independent than females.

Hayashi and Bryden (22) experimented with ocular dominance and perceptual asymmetry. They found conflicting

evidence about whether or not an interaction between acuity and cerebral dominance exists and leads to field superiority.

Bryden's (10) experimental results showed that hemispheric dominance is more important than directional scanning in determining left-right differences in the recognition of single-letter material.

Evidence against the hypothesis of lateral dominance as the determinant of left-right field differences has been set forth by Kirssin and Harcum (29). All subjects reproduced elements of tachistoscopic patterns to the left of fixation more accurately rather than only those subjects who were dominant in the right cerebral lobe, i.e. left-handed.

In a further study of handedness and identification accuracy in the visual field, it was found that tachistoscopically-presented verbal material is more accurately recognized in the cerebral hemisphere in which speech is represented (cerebral dominant lobe); but when multiple-letter stimuli are used, the stimuli are recognized more accurately in the right or left field according to learned directional reading habits.

McKinney (34) attempted to resolve the question about whether handedness (cerebral dominance) or eyedness (ocular dominance) account for the left-right imbalance. His subjects consisted of 49 right-handed and 50

left-handed high school students. The right field was more stable in respect to perceptual fragmentation of dim stimuli. McKinney's conclusions indicate that the difference is not related to handedness but is significantly related to ocular dominance when binocular vision is employed. Monocular results showed significant laterality differences for the left eye but not for the right. McKinney believes this is due to cerebral dominance and retinal sensitivity.

Since the present study employed binocular vision, statistical blocks were set up against the effects of ocular dominance. Even though McKinney believes the left-right imbalance is not due to the dominant cerebral lobe (handedness), the percentages of right- and left-handed subjects were kept approximately the same in all situations.

The focus of this study is on the left-right imbalance phenomenon as studied by S. Howard Bartley and his colleagues. Most of Bartley's research has been on the left-right imbalance phenomenon's effect on phenomenal distance. His studies have been conducted in the vision laboratory of the department of psychology at Michigan State University, and the author of this study was fortunate to study and work in this lab under his direction.

Bartley and DeHardt (6) found that the left-right

imbalance does not occur when a small critical object appears in the background with a large object in the foreground. This agrees with Gogel (20) who found that this phenomenal distance of a critical object (the target object) is affected by the presence of any larger objects appearing in the visual field. Adair and Bartley (1) checked the phenomenon for a single large object in either the foreground or midground. The large object appeared closer to the observer viewing it on a visual track when it was on the left-hand side of the photographic print rather than on the right-hand side. Results led them to conclude that the greater the asymmetry in the scenes, the more pronounced the right-left imbalance, i.e. the closer large objects on the left appeared.

These results were confirmed by Bartley and Thompson (8). They used a man as the target object in their prints and found that the man appeared closer when on the left. This left-right imbalance was enhanced as a function of the degree of his laterality in the print.

Bartley and DeHardt (7) and Ranney and Bartley (38) in two separate investigations studied the apparent distance of small objects. Both studies indicated that when a small block and trees appear in the print, the small block appears closer to the observer only when it is placed on the left and the trees in the background appear on the right. Large foreground objects appear

closer than small foreground objects which are placed in the same position in the photographic print. From these findings, the experimenters inferred that the difference in the right-left position of a small foreground item is determined by the presence of a large background object, while the apparent nearness of a large foreground item is independent of other items present in the field.

An article concerning target structure and visual distance has been recently written by S. Howard Bartley and Ray Winters (9). They summarized all the recent findings in this area. Up until 1968, studies show that an object appears closer when on the left if it is: (a) a large object in ether the foreground or midground; or (b) a small object in the foreground if a large object appears in the background on the right-hand side.

This phenomenon does not occur when a small object is in the background by itself or accompanied by large objects in the foreground or background. Bartley and Winters further report that researchers have found that trees have maximum ability to obscure an object when they appear on the left and are far less effective in obscureness when on the right.

To test for difference between perception of three- and two-dimensional fields, Bartley (3) conducted perceptual experiments utilizing both two- and three-dimensional scenes. He found that lateral and

elevational positions are perceived similarly on both the right and left sides regardless of which dimension was used. Therefore, the use of photographic slides in this study should yield the same perceptual results as the use of three-dimensional scenes.

Searching for artifactual causes of perceptual primacy, Ayres (2) used a "fixation forcer." The results revealed no difference in the accuracy of perception with primacy occuring in the upper left visual field. Fitzgerald and Marshall (15) exposed eight letters horizontally across fixation for 300 msec. by means of a tachistoscope. Letters on the right were reported more accurately than those on the left by the experimental group, while the control group reported letters on the left more accurately. The experimenters concluded that results depend on whether the letters to be reported come from one or both sides of fixation. The positioning of the letters in the stimulus-pattern, according to this, does not matter. The results were inferred by the experimenters to apply to all previous studies. Therefore, fixation was not considered as a major variable in the present experiment.

In testing variables in methodology, Redding, Mefferd, and Wieland (39) found that small head sways made by subjects do not influence experimental results. Therefore, head braces or chin rests are not necessarily

needed. Bartley (4) compared photographic print size, object position, and object size. His results indicate that there is no difference in results whether an enlarged photographic print or a cropped picture is used.

Early attempts to apply principles of psychology to advertising led researchers to study the difference in the amount of attention received by ads on right-hand or left-hand pages. As has been evidenced, much of the experimentation was not very scientific. Even today, many of the so-called principles of advertising have not been scientifically researched to determine if there is evidence to support their validity.

III. METHODOLOGY

Subjects

The sample of 40 consisted of undergraduates enrolled in an introductory advertising class, students enrolled in two research advertising classes, and of graduate students on the campus of Michigan State University. Volunteers were taken from these groups to fill quotas of 20 right-eye dominant Ss and 20 left-eye dominant Ss.

Eye dominance was determined by each subject himself by means of the standard sighting test commonly used by psychologists in visual perception labs. In other words, the S was asked to focus on a single line, such as that made by the edge of a door, with both eyes open. He was to hold up his thumb at arm's-length and center this with the line on which he had focused. Then he was told to alternately cover one eye (rather than closing the eye so that the effects of eye strain could be avoided) and then the other without changing position. The dominant eye is the one which is uncovered when the thumb appears to move away the least from its initial centered position. If there were any questions in the S's mind,

the sighting procedure was repeated until there were no more doubts.

At first glance, this method may not appear to be very rigorous, but results do coincide with those found by opthalmologists using eye drops to determine the dominant eye. Since the sighting procedure is most commonly used in the psychology labs, this method was considered rigorous enough for the present experiment.

The groups of 20 right- and 20 left-eye dominant Ss were then divided in half so that 10 right-eye dominant Ss and 10 left-eye dominant Ss received treatment A, and the remaining 20 Ss (10 left-eye dominant and 10 right-eye dominant) received treatment B. This was done to compose a 2 x 2 x 2 factorial design to block for eye dominance and treatments.

These Ss ranged in age from 19 to 39 years with the mean age for males being 23.32 years and that for females being 21.75 years. The average age for the entire sample was 22.85 years. Classification statistics on the Ss appear in Table 2, and the classification questionnaire appears in the Appendix. All Ss used in the initial experiment were Western-language reading, i. e. all read from left to right and from top to bottom of a page.

Apparatus

The experimental portion of this study was

conducted by means of a carousel slide projector fitted with a tachistoscope. The tachistoscope was calibrated so that when it was triggered, slides would be exposed to the viewer (S) for 1/25 second (40 msec). The tachistoscope was securely taped onto the lens of the slide projector. The projector was positioned so that, at the focal point, its lens was 3 feet from the wall screen. This produced an 8 1/2 x 11 in. image of each slide centered laterally on the screen. The S was seated on a chair centered 2 feet directly behind the projector. The room was dark with the lights closed and window shades drawn. This was to control for any extraneous light and to keep lighting conditions equal for all Ss.

A chin rest was not used for the Ss, since the study by Redding, Mefferd, and Wieland (39), discussed earlier in this study, indicates that small head sways made by Ss do not influence the experimental results. Since all Ss were positioned straight forward in the chair for the experiment and since the present experiment did not consist of distance measurements, a chin rest was not considered necessary.

Pretest

A pretest was conducted using the slides used in the present study. The following were manipulated during the pretest:

1. Time exposure per slide--Results indicated

that 1/25 sec. per slide was the optimal exposure time for this study. With longer exposure time, the S perceived so much of the ad that he was unable to determine which part of the layout he perceived first. Exposure times shorter than 1/25 sec. resulted in the S perceiving only a blur. Ss, also, had to be told of the exposure time, or else they reported perceiving nothing distinguishable.

2. Total time of the experiment per S--Total experimental time greater than fifteen minutes caused the S to become tired of sitting in the proper position. This led to more body movements which might have influenced experimental results.
3. Instructions of the Ss and classification and data questionnaires--These were changed during the pretest so that the instructions and questionnaires used at the end of the pretest were simple and concise. Findings from manipulations during the pretest were used in determining the experimental procedure in the final study.

Theory and Hypothesis

The hypothesis of this experiment is that accuracy

of perception will be greater when the critical object appears on the left-hand side of an illustration within an advertisement than when it appears on the right. The theory behind this hypothesis is given in Chapter II. This is the first test of the left-right imbalance phenomenon in which both verbal and nonverbal stimuli (messages) are present. Statistical blocks will test for effects of: 1.) eye dominanace; and 2.) perception of the illustration and copy.

Experimental Procedure

The experiment was conducted in a classroom of the Department of Advertising at Michigan State University over a two-week period: May 19 to June 1, 1969. Total time per S was ten to fifteen minutes.

Each S was asked to fill out a classification questionnaire (see the Appendix). The S was then seated in the chair and instructed to keep his back straight against the back of the chair and keep his head positioned straight forward. He was asked if he were, according to his knowledge, color blind to any extent. Color blind Ss were disqualified. So were Ss who did not have 20/20 vision or 20/20 corrected vision. This also was determined by questioning the Ss. The S was allowed to dark-adapt and was then given the following instructions:

> You will be shown a series of six slides. Each slide is of a full-page advertisement. It will appear centered on the screen in this 8 1/2 x 11 in. area (at this point, the experimenter indicated the exact area on the screen). The slide will appear for a very brief amount of time, only 1/25 of a second. After each slide, I will ask you a few simple questions on what you perceived as far as the illustration, copy--writing in the ad, colors, product, and the advertiser, or brand. I will also ask you about the location of the illustration and copy block in regard to right, left, upper, lower, or center of the full ad. I want to know what you perceive first. I will repeat the questions to you after each slide (see the Appendix for the questions). Do you have any questions? Are you ready to begin?

The S received either treatment A or treatment B. The six slides in each of these treatments were shown in the same order to Ss. This was done in case there is some adjustment period during which perception increases, i.e. as the number of slides viewed increases, perception increases. In this manner, the order was controlled. Since perceptual scores for each slide are added to give the final perceptual score per S, any perceptual difference due to the ad's position in the sequence is eliminated. At the end of the experiment, the S was asked if he recalled seeing any of the ads prior to this experiment. This was an attempt to determine if familiarity is an important factor in the perception of these ads.

Experimental Messages

Twelve slides were prepared for experimental purposes. Six, designated as treatment A, were slides with

the critical illustration on the left. The other six, designated as treatment B, were the identical ads which had been re-arranged so that the critical illustration appeared on the right.

All the slides were of full-page color ads (all the same size) of consumer products advertised in magazines. The layouts of the ads were of the type which enable distinction between the lateral right and left sides. The following are photographic prints of the slides which were used and the names of the magazines in which the original ads appeared (See slides 1 through 6).

Color was controlled by using the same ad with a different arrangement of the units in the layout for the two different treatments, i.e., the color within the ad remained the same; only the layout arrangement changed (this can be seen in the prints on the succeeding pages). For example, the "Kool" ad in treatment A has a brown bag and a green circle of ferns on the left-hand side of the ad. In treatment B, the bag remains brown and the circle of ferns remains green, only the ad has been spliced down the vertical center line so that the bag and circle now appear on the right-hand side rather than the left-hand side.

Questionnaire

Perception questions dealt with the following items:

A

B

Slide No. 1.--Sports Illustrated, March 17, 1969

A

B

Slide No. 2.--Good Housekeeping, March, 1969

A

B

Slide No. 3.--Glamour, March, 1969

A

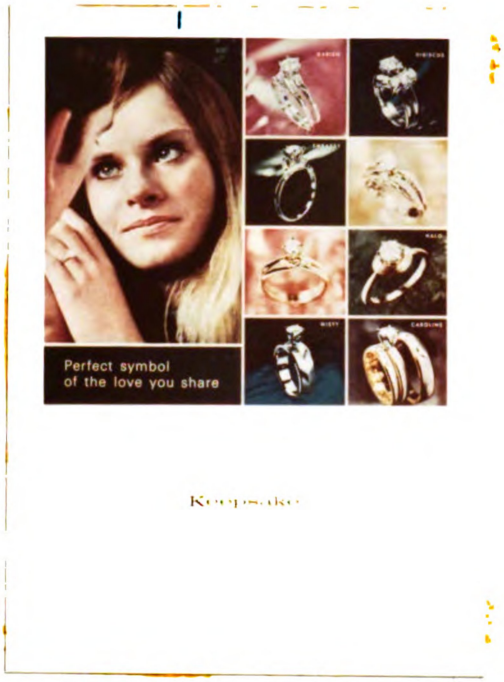
B

Slide No. 4.--Madmoiselle, March, 1969

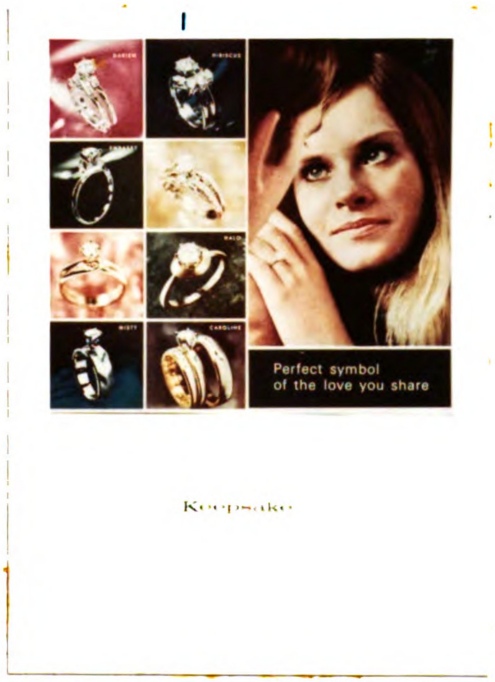
A

B

Slide No. 5.--Sports Illustrated, March 17, 1969



A



B

Slide No. 6.--Glamour, March, 1969

(a) the first item of the layout perceived by the S and its location within the ad;

(b) the copy, its identification and location;

(c) the illustration, its identification and location;

(d) the perception of colors;

(e) the product being advertised; and

(f) the advertiser or brand of the product.

Identical questionnaires were administered to Ss. Each S took between ten and fifteen minutes to complete the questionnaire. A copy of the questionnaire appears in the Appendix.

Problems Encountered

The first problem which arose concerned filling the quota of twenty left-eye dominant Ss. Originally only undergraduates from advertising courses were going to be used as Ss. Since most people are right-eyed, there was an over-abundance of right-eyed Ss and a shortage of left-eyed Ss. For this reason, the sample was revised to include graduate student volunteers who filled the quota requirements. To overcome the problem of lack of random selection of Ss, treatments A or B were randomly assigned.

Scheduling was another problem. Participants had to be scheduled according to the free hours which coincided with those of the experimenter. All experimentation

had to be conducted after 5:00 P.M., since the classroom was used for lectures during the day.

Finances were another problem. Costs prohibited obtaining special copies of magazines containing the two treatments of ads under consideration. Such magazines would have enabled testing for manifestation of the left-right phenomenon in a more real situation.

Because the experiment had to be spread out over two weeks, Ss could possibly have spoken to each other about the study before all of them had actually participated. Therefore, each S was cautioned against disclosing details of the experiment so that biases due to prior knowledge about the experiment could be minimized. Also, Ss were selected from three different classes, a dorm, married housing, and off-campus apartments to help elimi nate extensive interaction.

Operationalization of Left-Right Perceptual Variables

Items in the ad layout were weighted in order to differentiate among degrees of perception. The rationale was that the more specifically an item was identified by the S, the more the S had perceived. Hence, more points were assigned to more specifically identified items with emphasis on items in the critical illustration. For example, more points were allotted when the S correctly perceived the copy block as "upper right" rather than

merely "right" or when he perceived the figure as a "little girl" rather than a "person." Since each S was rated with the same rating scale, any bias due to the assignment of points in the rating scale was eliminated.

Perceptual scores pertaining to the illustration and those pertaining to the copy were separated, since the initial hypothesis of this study was to determine if Ss perceive the illustration more accurately when it appears on the left-hand side of the page. Perception of copy was rated, since the initial purpose of this study was to test for manifestation of the left-right imbalance phenomenon in a situation where a combination of both verbal and nonverbal material appears. A total of 120 points were possible for the illustration perceptual score, and 40 points were possible for the copy score. This was done to add "weight" to the correct perception of the critical illustrations.

The open-ended questions (see Appendix) which were asked after the presentation of each slide, were designed to determine both the illustration and copy perception scores. The first question ("What did you perceive first, and where was it located?") was an attempt to determine if the S perceived the copy or the illustration first. The next questions on the identification and location of the copy and the illustration were for determination of the extent of perception of each of these. The question

on colors perceived was for determination of any effects which may be due to its presence. Questions on the product and advertiser (or brand) were included to further determine extent of perception.

Since exposure time for each slide was so brief, Ss were set, i.e., they were focused on the area where the ad would appear, and they knew what type of questions the experimenter would be asking them about their perception. Even though coded multiple-choice answers would be easier to quantify, open-ended questions were used to permit Ss to fully describe what they perceived.

The experimenter developed a perceptual rating scale for this experiment so that results could be quantified. The following is the rating scale for the perception of the illustrations within the ads:

SLIDE 1: total of 20 points possible

	Points
Location: (one of the following)	
Upper	2
Upper right	1
Upper left	1
Other	0
Main figures: Points given for (1) a or b and (2) c or d	
a. Girl (female)	3
Guy (male)	3
b. People	1
c. Shoe	2
d. Object	1

	Points
Position:	
Holding hands	1
Walking towards S	1
Aerial view	1
Setting:	
Outdoors (trees behind)	1
Plain background	1
Colors:	
Green	1
Blue (navy)	1
Brown	1
Black	1
White	1

SLIDE 2: total of 20 points possible

Location: (one of the following)	
Upper right	2
Upper left	2
Right	1
Left	1
Other	0
Main figures: (points for a or b)	
a. Woman	5
Little girl	3
b. People	2
Setting:	
Portrait	2
Colors:	
Brown	1
Black	1
Red	1
Blue	1
White	1
Logo:	
Identification as a logo	2
Location (lower right)	1

SLIDE 3: total of 20 points possible	Points
Location: (one of the following)	
Lower right	2
Lower left	2
Right	1
Left	1
Lower	1
Other	0
Main figures: (points for a or b)	
a. Woman	7
b. Person	3
Position:	
Standing	1
On the phone	1
Setting:	
In phone booth doorway	3
In doorway	1
Colors:	
Red	1
Blue (navy)	1
Yellow	1
Grey	1
White	1
Black	1

SLIDE 4: total of 20 points possible	
Location: (one of the following)	
Lower right	2
Lower left	2
Right	1
Left	1
Lower	1
Other	0
Main figures: (points for (1) a or b and (2) c	
a. Girl	5
b. Person	2
c. Girl behind in background	2

Position:	Points
On the ground	1
Doing the bicycle on back	1
Standing	1
Setting:	
Outdoors	1
Colors:	
Purple	1
Yellow	1
Brown	1
Green	1
Grey	1
Black	1
White	1

SLIDE 5: total of 20 points possible

Location: (one of the following)	
Right	2
Left	2
Upper right	1
Upper left	1
Lower right	1
Lower left	1
Other	0
Main figures: (points for (1) a or b and (2) c or d and e)	
a. Tied bag	4
b. Object	2
c. Circle with 2 Kool cigarette packs in it	5
d. Circle	2
e. Two packs of cigarettes	2
Position:	
Bag above the circle	2
Kools in a circle of ferns	2
Colors:	
Brown	1
Green	1
Tan	1
Black	1
White	1

SLIDE 6: total of 20 points possible	Points
Location: (one of the following)	
Upper	2
Upper right	1
Upper left	1
Other	0
Main figures: (points for (1) a or b, and c; (2) d; and (3) e)	
a. Girl	4
b. Face	2
c. Guy	1
d. Picture	1
e. Wedding and engagement rings	2
Position:	
Guy facing girl	1
Girl's face with hands up by the side of her face	1
Squares (of wedding rings)	1
Colors:	
Brown	1
Red	1
Blue	1
Yellow	1
Green	1
Purple	1
Black	1
White	1

All responses not mentioned in the rating scale were given zero points. Responses of "full-color" were given 4 points.

The following is the rating scale for perception of the copy, the product type, and the brand (or advertiser of the brand):

ALL SLIDES: total of 40 points — Points

Copy:

*Identification	5
**Location	5
***Product	5
****Advertiser (or brand)	5

*Copy identification: (see ads, pages 27 to 32)

Slide 1: "Shoes of Aztran feel great from the Start"

Slide 2: "Can you compete with your daughter's 'Little Girl Look'?"
"Mrs. Willis Peterson can. She keeps her complexion young-looking with pure, mild Ivory."
"The big girl's soap for complexions with that little girl look."

Slide 3: "Danskins are not just for Dancing"

Slide 4: "Danskins are not just for Dancing"

Slide 5: "Up tight over rough taste?"
"Come up to the Kool taste. It's smooth."

Slide 6: "Perfect symbol of the love you share"

**Location: — Points

Treatment A:

Slide 1:

Lower right	3
Upper right	1
Below left picture	1

Slide 2:

Lower	3
Upper right	2
One side below	1

Slide 3:

Upper right	5

Slide 4:

Upper right	5

Slide 5:

Left	3
Lower right	2

Slide 6:	Points
Lower	3
Below left picture	1
In pictures on right	1

Treatment B:
Points run the same except wherever the location was listed as "right" is now listed as "left" and whatever was "left" is now "right." For example, in Slide 1, "lower right" response for 3 points now becomes "lower left" response for 3 points.

***Product:

Slide	
1	Shoe material or shoes
2	Soap
3	Hosiery
4	Hosiery
5	Cigarettes
6	Diamond and wedding rings

****Advertiser or brand:

Slide	
1	Aztran, B.F. Goodrich and Winthrop
2	Ivory
3	Danskin
4	Danskin
5	Kool
6	Keepsake

Statistical Design

The statistical analysis focused on the independent and interactive effects of four independent variables: right-eyedness, left-eyedness, Treatment A (slide of ad with critical illustration on the left-hand side), and Treatment B (ad with critical illustration on the right), on two dependent variables: illustration perception score and copy perception score. All Ss were randomly assigned

to Treatments A or B to fill quotas of ten right-eyed and ten left-eyed Ss for each Treatment.

The samples were assumed to be normal with the means for right-eyed Ss equal to those for left-eyed Ss. Therefore, one-tailed t tests were used to test the hypothesis where Treatments A and B were the independent variables and the illustration and copy perception scores were the dependent variables. One-tailed Mann-Whitney U tests were used to test the hypothesis where the independent variables were eye dominance and the dependent variables were the illustration and copy perception scores.

The Mann-Whitney U test should be used when the sample distribution is not normal, while the t test is restricted to use when the distribution is normal. Therefore, the Mann-Whitney U tests constituted a check on the reliability of the t tests.

The statistical design was a 2 x 2 x 2 factorial design. The following table was used in the analysis:

Table 1.--Factorial Design

	Treatment A		Treatment B	
	right-eyed	left-eyed	right-eyed	left-eyed
Illustration				
Copy				

IV. FINDINGS

The results of the experiment were tabulated and analyzed by several statistical procedures. Table 2 shows these results:

Table 2.--Means and Standard Deviations of the Perceptual Rating Scores

	Treatment A				Treatment B			
	Right-eyed		Left-eyed		Right-eyed		Left-eyed	
	Ill.	Copy	Ill.	Copy	Ill.	Copy	Ill.	Copy
Means	43.0	10.6	45.5	11.8	45.7	14.2	45,5	14.0
Standard Deviation	5.8	5.1	11.6	6.0	9.7	8.4	7.7	6.6

Mean scores and standard deviations were calculated for each of the eight components of the 2 x 2 x 2 treatments of the factorial design. There were 120 points possible per S for the illustration score and 40 points possible per S for the copy score. Values of the t test for samples above 30 approximate those of the z-scores. A t is still used in this situation, though, because of the uncertain experimental sampling conditions.

The experimenter's hypothesis was that illustrations on the left-hand side of the ad would be more accurately perceived than those on the right-hand side. To indicate this, the means for Treatment A must be significantly greater than those for Treatment B in the positive direction, since an increase in the accuracy of perception is shown by an increase in the perceptual score.

The null hypothesis is that the sample means of the scores of A are less than or equal to B. The alternate hypothesis is that the means of the scores of A are greater than those of B. Rejection of the null hypothesis implies that there is a significant difference between the Treatments.

A special "Student's" t test for the difference of two means was derived and used to test the hypothesis. The resulting t of -.437 for the illustration score means (A-B) was not significant at the .05 level (1.96) employing a one-tailed test with thirty-six degrees of freedom. In fact, these results indicate a trend in the opposite direction (i.e., the illustration may be perceived more accurately on the right-hand side of the ad).

Copy scores were tested in this same manner. Although copy was not included in the initial hypothesis, the existing studies in the review of the literature indicate that copy should be more accurately perceived when it appears on the right. The resulting t between

Treatments A and B was -1.30, and, therefore, was not significant at the .05 level (-1.96) employing a one-tailed test again with thirty-six degrees of freedom. In both the illustration and copy, the null hypothesis has not been rejected.

An over-all t test using the null hypothesis pertaining to illustration scores was derived and run on the difference between the sum of all four means for Treatment A (the two illustration means plus the two copy means) and the sum of all four means for Treatment B. The difference between means for the left and right was -8.5. The resulting t of 1.184 was not significant at the .05 level (1.96) employing a one-tailed test with seventy-two degrees of freedom.

A Mann-Whitney U test was used to determine any significant differences between individual treatments. Perceptual scores for the illustration between Treatments A and B for right-eyed Ss were tested, and the result was a U equal to 24 with probability of .5000 when $n_1 = n_2 = 7$. Since an alpha-level of .05 is less than .5000, the null hypothesis (the same as for the t test) could not be rejected. Differences in the perceptual scores for copy for right-eye dominant Ss between Treatments A and B were also tested. The U value was 29 with the probability of this occurrence being .1701 with $n_1 = n_2 = 9$. Since this is

not less than .05 (the level of significance), the test was not significant.

Mann-Whitney U tests were run on the same treatments using left-eyed Ss. The U for the illustration scores was 15 with a probability of .3496 with $n_1 = n_2 = 6$, and the U for the copy scores was 12 with a probability of .1970 with $n_1 = n_2 = 6$. Since neither of the probabilities were less than the .05 level, the null hypothesis could not be rejected. Differences between right- and left-eyed Ss within Treatment A and within Treatment B can be recognized by inspection of the data as not significant (see Table 2).

Table 3 shows classification data:

Table 3.--Classification Data

Demographics	Treatment A		Treatment B	
	Right-eyed	Left-eyed	Right-eyed	Left-eyed
Mean Age (years)	21.4	26.2	21.1	22.7
% Females	20%	30%	30%	40%
% Males	80%	70%	70%	60%
% Right-handed	90%	80%	80%	80%
% Left-handed	10%	20%	20%	20%

By inspection, there is no significant difference between mean ages for Ss in Treatments A and B. The sex percentages and the dominant hand percentages for each of the four groupings are approximately the same (see Table 3).

Table 4 shows the mean perceptual scores for the demographical characteristics mentioned in the preceding paragraph. Since the percentages for males, females, right-handed, and left-handed Ss were approximately the same for each treatment, these variables do not appear to alter the results.

Table 5 shows the means of perceptual scores for Treatment A, Treatment B, and combined Treatments A and B according to age. There is no general trend, increasing or decreasing, in the scores as a function of age. There was only one S in each of the 19, 26, 27, 31 and 39 years old groups. Since the mean perceptual scores for these Ss were not significantly different from those for the 20-25 year old group, the age difference does not appear to affect results.

Distribution of the layout units reported as "Seen First" for each slide is given in Table 6. The illustration was most often reported as "seen first." Color was reported as the next most often "seen first," while copy was reported least often. This indicates that the illustration, regardless of its left or right location, attracts the S's perception.

Table 4.--Mean Perceptual Scores by Demographical Characteristics

Demographical Characteristics	Treatment A				Treatment B			
	Right-eyed		Left-eyed		Right-eyed		Left-eyed	
	Ill.	Copy	Ill.	Copy	Ill.	Copy	Ill.	Copy
Females	43.0	7.0	52.7	12.3	46.3	12.0	49.5	20.2
Males	43.0	11.5	42.4	11.6	45.4	15.1	42.8	9.8
Right-handed	43.9	11.4	46.4	11.9	44.6	14.5	43.8	13.4
Left-handed	35.0	3.0	42.0	11.5	50.0	13.0	52.5	16.5

Table 5.--Means of Perceptual Scores According to Age

Age (years)	Means for Treatment A		Means for Treatment B		Combined Means for A and B	
	Ill.	Copy	Ill.	Copy	Ill.	Copy
19	---	---	45.5	18.5	45.5	18.5
20	45.0	7.3	38.7	4.3	41.9	5.8
21	40.0	9.0	46.7	17.3	43.4	13.2
22	47.7	15.2	48.7	14.7	48.2	15.0
23	53.0	13.0	47.2	17.0	50.1	15.0
24	38.0	14.0	46.5	13.0	42.3	13.5
25	55.0	6.0	43.0	8.0	49.0	7.0
26	40.5	12.5	---	---	40.5	12.5
27	31.0	10.0	---	---	31.0	10.0
31	41.0	13.0	---	---	41.0	13.0
39	45.0	3.0	---	---	45.0	3.0

Table 6.--Layout Units Reported as "Seen First"

Layout Unit Reported as "Seen First"	Slide No.	Treatment A		Treatment B	
		Right-eyed	Left-eyed	Right-eyed	Left-eyed
Illustration	1	10	8	9	7
	2	10	10	10	10
	3	10	8	8	8
	4	10	9	10	9
	5	9	10	10	9
	6	10	10	10	10
Copy	1	--	--	--	1
	2	--	--	--	--
	3	--	--	1	--
	4	--	--	--	--
	5	--	--	--	1
	6	--	--	--	--
Color	1	--	2	1	2
	2	--	--	--	--
	3	--	2	1	2
	4	--	1	--	1
	5	1	--	--	--
	6	--	--	--	--

Table 7 shows the number of Ss who perceived color. Thirty-seven saw color on at least one slide. More Ss saw color in more slides with Treatment B than with Treatment A. Thirty-five out of forty Ss saw color in slide no. 3. This was probably due to the red color in this slide. Green was seen in the next highest frequency (slide no. 5). These effects were a function of the layouts.

Because of these results, the perceptual scores minus the color scores were tabulated to determine if the effect of color, if any, masked any significant difference between treatment means. Tabulation was only done for illustration scores, since copy was only in black and white.

The null hypothesis is that the mean perceptual scores of Treatment A, excluding color scores, are less than or equal to the mean perceptual scores of Treatment B excluding color scores. The alternate hypothesis is that these scores for Treatment A are greater than those for B. By inspection, the means are not significantly different between or within treatments (see Table 8). So, color scores do not appear to mask differences. The fact remains, though, that even though color scores were subtracted from total scores, the mere presence of color may have affected results of over-all perception.

Table 7.--Percentage of Subjects Who Perceived Color

Slide No.	Treatment A		Treatment B		Total per Slide
	Right-eyed	Left-eyed	Right-eyed	Left-eyed	
1	7.5%	2.5%	5.0%	2.5%	17.5%
2	0.0	0.0	2.5	5.0	7.5
3	17.5	22.5	2.5	22.5	87.5
4	10.0	5.0	17.5	7.5	40.0
5	7.5	12.5	15.0	17.5	52.5
6	5.0	2.5	15.0	5.0	27.5
% S Who Saw Color on at Least One Slide	80.0	90.0	100.0	100.0	Total for Samples: 92.5

Table 8.--Perceptual Scores Minus Color Scores

Subject No.	Treatment A		Treatment B	
	Right-eyed	Left-eyed	Right-eyed	Left-eyed
1	40	28	39	39
2	46	44	63	40
3	53	38	51	34
4	38	31	34	53
5	46	53	57	41
6	37	41	34	54
7	30	53	33	55
8	38	42	44	37
9	47	69	36	44
10	36	37	34	34
Means:	39.1	43.6	42.5	43.1

In Treatment A, two right-eyed Ss correctly reported having seen one of the ads previously, and two left-eyed Ss reported having seen one of the ads before. None of the right-eyed Ss in Treatment B reported having previously seen any of the ads while three left-eyed Ss reported having seen the ads before. Two of these reported seeing one of the ads before, and the other reported seeing two of the ads before. Actually Ss assigned to Treatment

B could not have seen these exact ads before, since the experimenter of this study rearranged the ad layouts. The Ivory ad (slide no. 2) was reported as "seen before" by three Ss; the Kool ad (slide no. 5) was reported as "seen before" by four Ss; and the Keepsake ad (slide no. 6) was reported as "seen before" by one S.

V. DISCUSSION

Presence of the left-right imbalance phenomenon has been demonstrated by experimenters using either verbal or non-verbal material. The present study was conducted for the purpose of testing, by tachistoscopic presentation, for the manifestation of this phenomenon in the visual perception of certain color illustrations within single full-page magazine ads where a combination of verbal and non-verbal material exists. The experiment was set up as a 2 x 2 x 2 factorial design to block for any possible effects from the use of Treatments A or B, of ocular dominance, and of illustration or copy perception scores.

The hypothesis tested stated that a S perceives illustrations more accurately when they appear on the left-hand side of the ad than when they appear on the right.

Perceptual rating scales were set up for both copy and illustration perceptual data obtained from open-ended questions. A one-tailed t test at the .05 level of confidence on the illustration perceptual scores indicated that there is no significant differences between

means for the different treatments and that the null hypothesis cannot be rejected. Therefore, the results showed that the sample illustrations on the left are not perceived significantly more accurately than when they appear on the right.

A t test conducted on the copy scores indicated that the null hypothesis could not be rejected. Therefore, the copy in the sample ads was not perceived more accurately when it appeared on the right-hand side of the ads (as indicated by previous studies) rather than on the left.

An over-all t test was run to test for any significant difference between the sum of four means for Treatment A and the sum for the four means of Treatment B. Again results did not display a significant difference at the .05 level of confidence. Therefore, over-all perception of the ad is not significantly more accurate when the illustration is on the left and the copy block on the right.

Mann-Whitney U tests were run on both illustration and copy perception scores of right-eyed Ss to test for a significant difference in results when either Treatment A or Treatment B were employed. Test results were not significant. Neither were similar data scores of left-eyed Ss analyzed by the same test. Therefore, eye dominance does not appear to significantly affect results

between the left and right treatments as the literature indicates. Differences between eye dominance within Treatment A and within Treatment B were not significant either. Therefore, eye dominance does not appear to significantly affect results within the left treatment (A) or within the right treatment (B).

No increasing or decreasing trend for scores was evidenced by age. This was probably because the Ss used were, with few exceptions, in the 20-25 year old age group. Field dependence would not differ greatly in such a group. The exceptions did not differ in scores significantly from the scores of the 20-25 year olds. The percentages by sex and by dominant hand were approximately the same for each treatment. Therefore, these factors should not affect any difference between treatments. Dominant hand has been shown to not affect left-right field perception by McKinney (34).

The present study and its hypothesis were proposed on the basis of findings from previous studies. One reason why the results of the present study were not consistent with those of previous studies is that binocular vision was used in this experiment. Previous studies used monocular vision where cerebral dominance (handedness) is a factor (34). Previous studies also did not include a combination of both verbal and non-verbal material. The visual phenomenon may not occur under those

conditions. Another reason may be the use of color. Previous studies were conducted in black and white.

Distribution of the layout units reported by the Ss as "seen first" indicated that the illustration was seen first most often; then color; and then the copy. This indicated that regardless of its left or right location in the ad layout, the illustration attracts the S's perception. This may be due to the after-image created by a color illustration which enables more time for perception, or this may be due to the more presence of color in the illustration.

Thirty-seven Ss out of 40 perceived color on at least one of the slides. More subjects saw color in more slides with Treatment B than with Treatment A with red being perceived most frequently and green the next most frequently. Further study in this area is necessary to determine why this happened.

Some Ss did not perceive any color. This is probably due to individual physiology within each S. In eye physiology, the rods act as sensory receptors in facilitating the perception of black and white. The cones are the visual receptors which facilitate color perception. The rods are activated much more easily than are the cones which need a larger energy impingement to be activated. Because of this, adjustment time is longer for cones than for rods. Some people's cones can adjust

faster than other people's. Since the exposure time was only 1/25 sec. (40 msec.), some Ss did not have enough time for their cones to adjust and, therefore, did not perceive color.

Because of the preceding results, a check was made on the possible effect of color. Color scores were subtracted from the illustration perceptual scores (copy was only in black and white). The null hypothesis was that the mean perceptual scores of Treatment A excluding color scores are less than or equal to those for B excluding color scores. The alternate was that those for A are greater than those for B. The mean scores were not significantly different between or within Treatment A and B. Therefore, color scores do not appear to mask any significant differences between perceptual scores.

Actually, though the color scores were subtracted, the actual effect of color was not. This may still be a major factor of the results of this study. To determine this, the experiment should be replicated using black and white rather than color ads.

Familiarity may be another reason for the present experimental findings. Since only eight out of forty Ss reported having seen at least one of the ads before (actually only four of these eight were accurate), familiarity does not seem to be a major factor in the perception

of the ads. Subjects may have in reality seen the ads before but did not recall or did not realize that they had.

An experiment can be devised to test the Hershonen and Haber results (26) where perception significantly increased with familiarity. To do this, an experiment similar to the present one could be conducted using slides of ads with a known amount of familiarity to the S. Results could be analyzed to see if perception scores increase with familiarity.

Another reason for the present results may be the limitations of the experimental method. One of these limitations is sample selection. Quota sampling techniques utilizing volunteers, may not have yielded a representative sample of the population. A larger sample might also indicate a more significant difference between treatment means (even though the present results indicate that illustrations may be more accurately perceived on the right) and might enable generalization to a larger population.

Determination of the dominant eye may have been erroneously determined by some Ss. The 2 x 2 x 2 (Treatments A vs. B x right-eyed vs. left-eyed x illustration vs. copy perceptual score) factorial design should have blocked for any effects due to the treatments. Some mechanical error in the tachistoscope could lead to an

inaccuracy in exposure time. Since the calibration was the same for each S, this would not affect over-all results. Also, the perceptual threshold could be determined for each S, so that the tachistoscope could be calibrated at a specific increment above threshold. Otherwise, both right and left treatments could be administered to a S and differences noted. These two methods would help eliminate individual S differences.

A simple acuity test with a "tumbling E" could have been used to determine acuity in the classification of Ss rather than merely asking the S if he has 20/20 or 20/20-corrected vision. Similarly all Ss could have been given a simple color-blindness test rather than their being asked if they were color-blind. Results indicate that the methods used did not hinder results, but the use of such tests would enhance the accuracy of classification.

The 8 1/2 x 11 in. image of the ads from a distance of 5 feet does not approximate the real situation when viewing ads in a magazine. The same type of study could be done using recall of ads from actual magazines rather than slides. Perceptual scores could be calculated and analyzed to determine if placement of an illustration on the left or right of a single page enhances perception of it.

Of course, in such a situation, placement of the ad on either the left-hand or right-hand side of a two page spread, the direction in which the magazine is turned, etc., influence results. This was the main reason (that of simplicity) why the present study was set up as it was rather than in a more "real" situation. The results of the present study are also a function of the ads used. The use of other ads may produce different results.

A chin rest may have also led to different results by insuring that body movements did not distort perception. This also would have held the visual angle subtended by each S constant rather than it being a function of the S's height. Ss were set; they knew the duration of exposure, fixation area, and questions they would be asked about their perceptions. This may have resulted in higher perceptual scores than would normally have been found. Since all Ss were set, this factor would not affect over-all results.

Another interesting experiment for the future is to test for cultural differences in the accuracy of perception between right and left. The experimenter began an experiment within the present one using Pakistani and Egyptian students who originally read Urdu and Arabic (from right to left) in comparison to those who were originally Western-reading (from left to right). The experiment was discontinued because of the difficulty in

finding the proper quota sample so that comparisons could be made with the present study and because of the amount of time occupied by the present study.

The use of Chinese or Japanese students should prove very interesting, also, and the experimenter hopes to explore these areas in the future. This may have relevance to the arrangement of units in advertising layouts for international sales by enabling advertisers to increase perception of their ads.

Results from the present study appear to warrant the following conclusions:

1) The sample illustrations on the left-hand side of the ads are not perceived significantly more accurately than when they appear on the right.

2) The copy in the sample ads was not perceived significantly more accurately when it appeared on the right-hand side of the ads than on the left.

3) Over-all perception of the ad as measured by the perception scales is not significantly more accurate when the illustration is on the left and the copy block is on the right.

4) Eye dominance does not appear to significantly affect results between or within the left treatment (A) or the right treatment (B).

5) Color scores do not appear to mask any significant differences between perceptual scores.

This study attempted to experimentally determine if the left-right imbalance theory applies to the effects of advertising layouts. Until recently, not much scholarly experimentation has been done in this area. Despite the inconclusive results of this experiment, the experimenter believes that much is to be gained through an incorporation of theories of perception into advertising practice. Experimentation in this area can yield better understanding of consumer perception of advertising messages.

APPENDIX

CLASSIFICATION QUESTIONNAIRE

Name

Address

Phone

Sex: _____Male _____Female

Age:

Acuity Test:

Dominant Eye:

Dominant Hand:

Languages Read:

SLIDE QUESTIONNAIRE

Questions:

A. What did you perceive first?
   Where was it located within the entire ad? (right, left, center, upper, or lower portion of the ad)
B. Did you see any copy?
   Where was it located within the entire ad?
   Could you read any of it, and if so, what did it say?
C. Did you see an illustration?
   Where was it located in regard to the entire ad?
   Describe it.
D. Did you see any colors?
   Which ones?
E. Could you tell what was being advertised? What?
F. Could you tell who the advertiser or brand was? What?

Responses:

Slide 1:
A.
B.
C.
D.
E.
F.

Slide 2:
A.
B.
C.
D.
E.
F.

Slide 3:
A.
B.
C.
D.
E.
F.

Slide 4:
A.
B.
C.
D.
E.
F.

Slide 5:
A.
B.
C.
D.
E.
F.

Slide 6:
A.
B.
C.
D.
E.
F.

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