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# Role of Pictures in Affecting Recall of Print Advertisements

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***Abstract*— Pictures in an advertisement that exemplify the verbal information about the product attributes enhance the recall of the ad when the verbal information is low in provoking images. These pictures do not affect the recall of the ad when the verbal information about product attributes is of high imagery because in this case images are self-generated due to high imagery nature of the verbal information.**

***Keywords- Imagery, Imagery Provoking, high imagery, low imagery***

## I. INTRODUCTION

Pictures are generally used in advertisements to support the claims or messages that the ad wants to convey. They exemplify the attributes of the product presented verbally. Now a day's use of pictures is rampant in advertisements. Therefore it is of great importance for marketers to understand the effects of pictures in print advertisements. In this study we establish the role of pictures in aiding the recall of print advertisements depending upon the imagery provoking nature of the verbal information.

### *A. Related Work*

There has been research in the field of consumer behavior to try and understand the relationship between pictures and verbal information and whether or not pictures help in better recall of this verbal information. According to [1], when pictures and text carry the same information, the presence or absence of pictures makes no difference to the recall. According to [2, 3]) interactive pictures have a significant effect by increasing the bond between the brand name and the picture, thereby increasing the recall. As far as attribute information is concerned, [2] discovered that the recall of attribute information was better when both picture and words were used to present, instead of using words for one attribute and a picture for another. Here, the authors have noted, that the increased recall can be because of repetition – usage of words and pictures to present the information, or dual coding of the information being displayed in the picture and through words.

Words are represented as verbal codes and pictures are represented as imaginal codes, with reference to dual coding model. Dual codes have a higher chance of forming for pictures, than for words. It is this very characteristic of the formation of dual codes, which is why it is easier to recall pictures alone than words alone and relate them to specific brands or products or objects.

At the same time, certain words carry the capacity to form images in the mind of the audience easier than other words. An example would be 'bird' versus 'flying'. 'Imagery value' refers to the ability of a word to generate an image in the mind of the audience. High imagery words have better recall than low imagery words (according to [3]). The imaginal and verbal codes that are generated in memory are due to these high imagery words (according to [4]).

Only a verbal code is formed in the audience's mind through low imagery words – a visual image is not created. In fact, studies done by [4], indicate that as compared to low imagery words and pictures, high imagery words and pictures show a smaller memory difference, with reference to recall of images from the memory.

In the same manner, the dual coding model can better elucidate the outcomes of high versus low imagery verbal claims in advertisements. When exposed to low imagery verbal claims under semantic processing conditions, subjects can form only a single code, which is verbal. For instance, when an ad claims that "camera X can capture images in low light", it is unlikely that an image that represents the statement is produced in the mind of the subject. This is because only a verbal code is formed. On the other hand, if an image exemplifying the claim—in this case, say, a night shot of the city scape—accompanies the verbal statement, two codes are likely to be formed. "Captures images in low light" should be stored in the mind as a verbal code, represented by a night shot of the city. And since two codes are now present, the claim should be easier to retrieve, rather than if no image was shown.

Exposing subjects to high imagery verbal information under semantic processing conditions, should lead to dual codes being formed in the memory, even in the absence of images. A high imagery verbal statement—example, one that says that camera X can capture images of the city in the night—would make the reader form the image of the city lights in the night as a natural part of understanding the meaning of the statement.

Research ([5]) shows that the same mental resources are used whether or not high imagery verbal information is accompanied by pictures explaining that information. So,

pictures along with high imagery verbal claims would not be expected to increase recall, as in such a scenario, the images are redundant as they are already being formed while processing the verbal claims.

## II. H YPOTHESES FORMULATION

Following hypothesis are formed for the problem. The images generated in the mind of a person due to verbal information of high imagery nature in an ad are similar to those of externally provided pictures. Thus,

H1: When the verbal information about the product attributes in an ad is of high imagery, the presence of pictures exemplifying that information does not increase ad recall.

When the verbal information about product attribute is of low imagery then images are not formed in the minds of individuals. In this case the addition of pictures enhances the retention of product attribute information in the minds of the individuals and thus enhances recall of ad. Therefore,

H2: When the verbal information about the product attribute in an ad is of high imagery, then the presence of pictures exemplifying that information increases ad recall.

Vividness of a message affects the recall not only immediately but also at a later time. It has been shown that more vivid information is recalled even after a two day delay ([2]).

H3: When the verbal information about the product attributes in an ad is of high imagery, the presence of pictures exemplifying that information does not increase ad recall in delayed posttest.

H4: When the verbal information about the product attribute in an ad is of high imagery, then the presence of pictures exemplifying that information increases ad recall in delayed posttest.

## III. METHOD

### *A. Design*

Manipulation of two independent variables was done in a 2×2 factorial design. The first independent variable represented the two imagery levels: high and low, in the advertisement for the product used for experiment. The second factor was the presence and absence of pictures in the advertisement. There were three attributes of the product that were presented in the ad copies that were with or without pictures.

### *B. Experiment Material*

To counter the effect of prior exposure, a product of interest to subjects was used for experiment and a fictitious name was given to it. We decided to use camcorder as the product and gave it the brand name “Digitex”.

Three attributes (ability to capture in low light, capture fast motion and capture sports action) of the camcorder were presented in the ads. Three color pictures were selected that represented the three attributes and also exemplified the verbally written information in the ad.

The verbal information in the versions of the ad without pictures was manipulated to create the ads high imagery and low imagery in nature. The two versions of the ad were tested for their imagery provoking nature. Thirty subjects were asked to rate the ads on three bipolar scales: Not Imagery Provoking/Imagery Provoking, Dull/Vivid, and Boring/Interesting. These scales were derived from other studies on effect of images ([6]). The mean of these scales was taken as the Imagery Index of the ad. It is shown in Figure 1.

The mean scores of the imagery index of the two versions of the ad were analyzed using ANOVA with imagery type of the message as the independent variable. The result shows that there is a significant effect of imagery ($F = 9.56$, $p < .005$). The high imagery version of the ad was rated higher on imagery ($M = 4.58$) than the low imagery version ($M = 3.4$).

**Table 1: Dependent Variable: Imagery Index Score**

| Imagery | Mean | Std. Deviation | N |
|---|---|---|---|
| High | 4.577778 | 1.3099482 | 30 |
| Low | 3.400000 | 1.6245247 | 30 |
| Total | 3.988889 | 1.5790133 | 60 |

### *C. Procedure*

Four versions of the ad were created: High Imagery without picture; High Imagery with picture; Low Imagery without picture; Low Imagery with picture. 80 subjects from our friends were chosen for the experiment. Each version of the ad was shown to 20 subjects. Four ads were used as fillers as shown in appendix as figure 1, 2, 3 and 4. The target ad was placed at the third ad place as shown in figure 5, 6, 7 and 8. The filler ads were used to reduce the effect of short term memory.

The subjects were instructed to carefully go through the ads. They were told they will be asked questions about any of the ads. So they should comprehend the ads well and understand the claims made by the ad.

After the subjects finished seeing the ads, they were given a questionnaire which asked them to write everything they could remember about the “Digitex” camcorder ad. They were also asked to rate the ad on the scales for Imagery Index.

Again after two days, the same subjects were asked to write down whatever they could recall from the “Digitex” camcorder ad.

## IV. EXPERIMENT RESULTS

### *A. Manipulation Check*

An analysis of imagery index with imagery type of the message and presence or absence of pictures as independent variables was done using ANOVA. The results show only one significant effect, that of message imagery ($F = 5.62$, $p < .05$). The message with high imagery was rated higher on imagery index ($M = 4.71$) than message with low imagery ($M = 3.96$).

### *B. Immediate Recall*

Recall scores were obtained by scoring the responses of the subjects. Scoring was done based on the number of units of information they could recall that were common in all the versions of the ad. There were a total of seven common units of information. These seven units were there in the descriptions of the three attributes of the product and were present in both the low and high imagery versions of the ad. Thus the recall score for each subject was out of a total of seven.

An analysis of variance was performed on the mean recall scores of the subjects with imagery type of the message and picture presence/absence as the independent variables. The analysis showed that there were no main effects ($p > .05$ in both cases). But there was a significant interaction between the two factors ($F = 7.41$, $p < .05$). This interaction between the imagery type of the message and the presence/absence of pictures supports the hypotheses H1 and H2. Since H1 and H2 separately talk about recall effects for high and low imagery messages respectively, separate tests were performed for each type of message imagery.

**Table2: Uni-variate Analysis of Variance of Mean Immediate Recall Scores of Subjects exposed to High and Low Imagery Messages with Picture Presence as Independent Variable**

| **Picture present/absent** | **Mean** | **Std. Deviation** | **N** |
|---|---|---|---|
| Absent-High | 3.60 | 1.046 | 20 |
| Present-High | 3.35 | 1.089 | 20 |
| **Total** | **3.48** | **1.062** | **40** |
| Absent-Low | 2.60 | 1.046 | 20 |
| Present-Low | 3.65 | 1.089 | 20 |
| **Total** | **3.13** | **1.181** | **40** |

An analysis of variance was performed on the mean recall scores of the subjects exposed to high imagery message with picture presence/absence as the independent variable. The analysis showed that there were no main effects ($F = .55$, $p > .1$). Thus the output supports H1.

An analysis of variance was performed on the mean recall scores of the subjects exposed to low imagery message with picture presence/absence as the independent variable. The analysis showed that there was significant difference between the groups ($F = 9.66$, $p < .005$). Thus the output supports H2.

Thus, the immediate recall test shows that there is no effect on the recall of the subjects when pictures accompany the high imagery type messages. But there is a significant effect on the recall in case of pictures accompanying low imagery type messages.

### *C. Delayed Recall*

H3 and H4 refer to same effects as that of H1 and H2 respectively but in a delayed recall. The same analyses were performed for these two hypotheses as that for immediate recall.

An analysis of variance was performed on the delayed mean recall scores of the subjects with imagery type of the message and picture presence/absence as the independent variables. The analysis showed that there were no main effects ($p > .1$ in both cases). But there was a significant interaction between the two factors ($F = 10.97$, $p < .005$). This interaction between the imagery type of the message and the presence/absence of pictures supports the hypotheses H3 and H4. Since H3 and H4 separately talk about recall effects for high and low imagery messages respectively, separate tests were performed for each type of message imagery.

An analysis of variance was performed on the mean recall scores of the subjects exposed to high imagery message with picture presence/absence as the independent variable. The analysis showed that there were no main effects ($F = .62$, $p > .1$). Thus the output supports H3.

**Table 3: Uni-variate Analysis of Variance of Mean Delayed Recall Scores of Subjects exposed to High and Low Imagery Messages with Picture Presence as Independent Variable**

| Picture present/absent | Mean | Std. Deviation | N |
|---|---|---|---|
| Absent-High | 2.75 | .851 | 20 |
| Present-High | 2.55 | .759 | 20 |
| **Total** | **2.65** | **.802** | **40** |
| Absent | 2.00 | .795 | 20 |
| Present | 3.10 | .968 | 20 |
| **Total** | **2.55** | **1.037** | **40** |

An analysis of variance was performed on the mean recall scores of the subjects exposed to low imagery message with picture presence/absence as the independent variable. The analysis showed that there was significant difference between the groups ($F = 15.43$, $p < .001$). Thus the output supports H4. Thus, the delayed recall test shows that there is no effect on the recall of the subjects when pictures accompany the high imagery type messages. But there is a significant effect on the recall in case of pictures accompanying low imagery type messages.

## V. DISCUSSION

The recall of verbal information is increased by pictures through the usage of dual codes. One code is the verbal code and the other is an imaginal code. Here we observe the addition of low imagery and high imagery to the same pictures. In the case of low imagery being added to the picture, dual codes are better formed, and they help the subject in better recalling the information. However, when high imagery is added to the same picture, these dual codes should form spontaneously as the subjects will attempt to understand the meaning of the verbal information. In this case, the subjects' ability to recall verbal information should not increase because the chance that dual codes are formed should not increase through the addition of pictures. Our findings indicate the same.

In both cases, the delayed post-test and the immediate post-test, the recall of the verbal information was increased by the inclusion of pictures providing that information, when we used low imagery verbal information. But, the subject was not better able to remember the advertisement when the verbal information used was high in imagery.

As far as the effect of recall of consistent verbal information through pictures is concerned, our findings also help distinguish between repetition explanation and dual coding. Since the picture accompanying the information provides another exposure to the information, higher recall results from it. This is repetition. As an example, subjects exposed to the 'great under low light' feature of the camcorder only through verbal information are exposed to it once, whereas subjects who are exposed to the same feature through verbal information and a picture are exposed to it twice. This should increase the recall. However, our findings were inconsistent with that because in the case of high imagery with pictures, this did not increase the recall.

Therefore, regardless of whether or not the high imagery is accompanied by pictures, the objective of advertisers who are aiming at a high involvement audience will be satisfied, as far as recall is concerned. So, visual images that are internally generated can be used in place of pictures that are generated externally. Our results display the power of imagery in advertising and the ways it relates to recall by the intended audience.

## REFERENCES

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## APPENDIX

### *A. Questionnaire for pre-test*

The figure used in pretest is shown in figure 5 and 6. The questionnaire is as follow.

Carefully read the advertisement (Figure 5, 6) and rate it on the following scales:

a.

1 2 3 4 5 6 7

(Not Imagery Provoking) (Imagery Provoking)

b.

1 2 3 4 5 6 7

(Dull) (Vivid)

c.

1 2 3 4 5 6 7

(Boring) (Interesting)

### *B. Questionnaire for Immediate Recall*

The figure used for immediate recall is shown in figure 1,2,3,4 5, 6, 7 and 8. The questionnaire is as follow.

Carefully read the advertisement and rate it on the following scales:

Q1. Kindly write everything you remember from the "Digitex" camcorder ad.

Q2. Now rate the "Digitex" camcorder ad on the following scales:

a.

1 2 3 4 5 6 7

(Not Imagery Provoking) (Imagery Provoking)

b.

1 2 3 4 5 6 7

(Dull) (Vivid)

c.

1 2 3 4 5 6 7

(Boring) (Interesting)

### *C. Questionnaire for Delayed Recall*

Q1. Kindly write everything you remember from the "Digitex" camcorder ad.


**Figure 1: Advertisement 1**


**Figure 2: Advertisement 2**

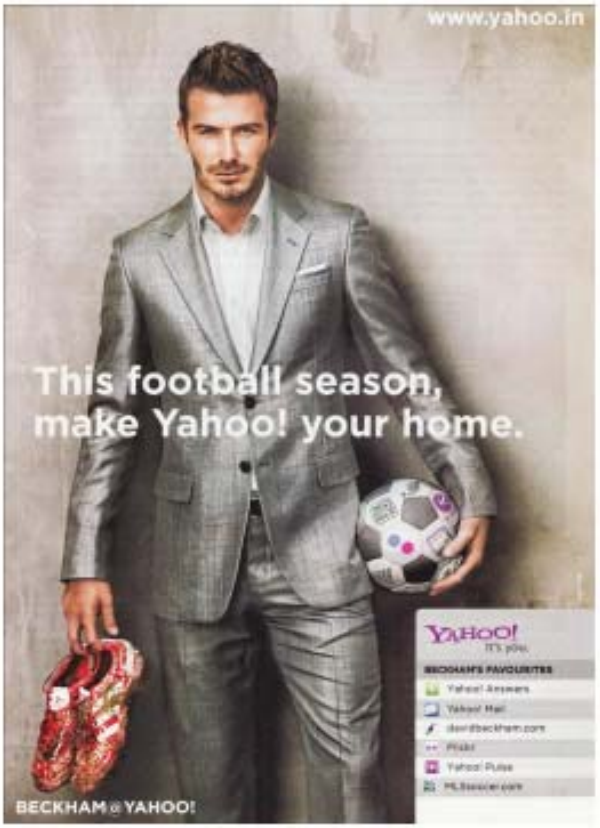


**Figure 3: Advertisement 3**


**Figure 4: Advertisement 4**

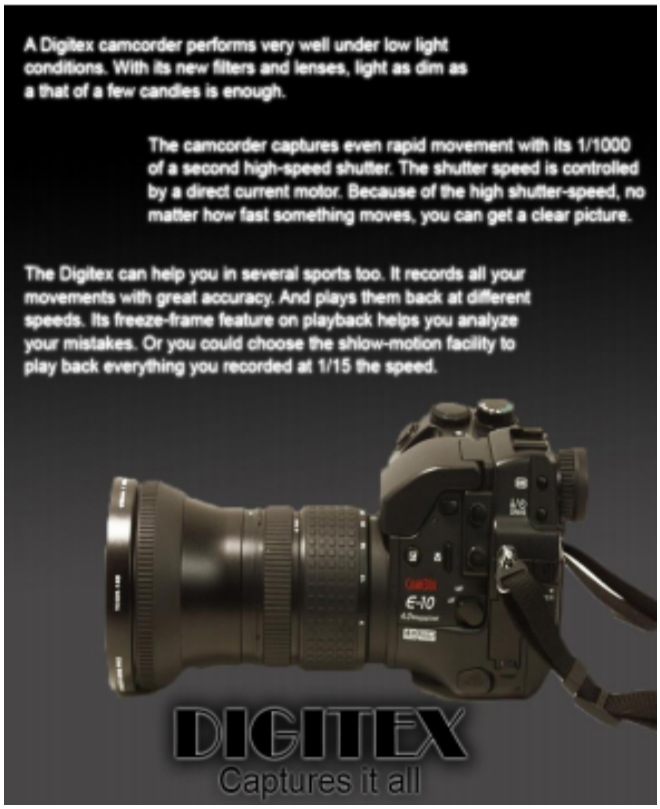


**Figure 5: Digitex: Low imagery without picture**

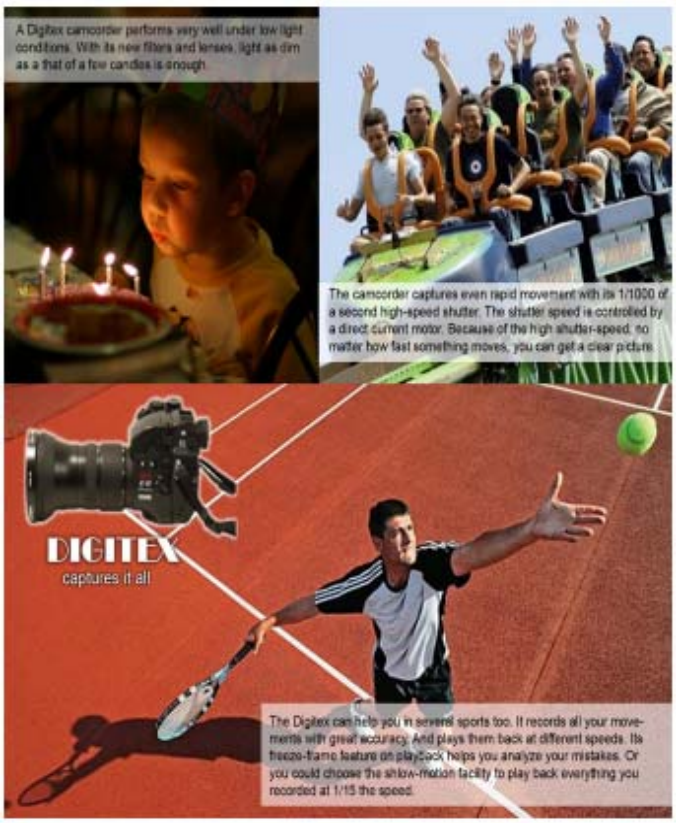


**Figure 6: Digitex: Low imagery with picture**

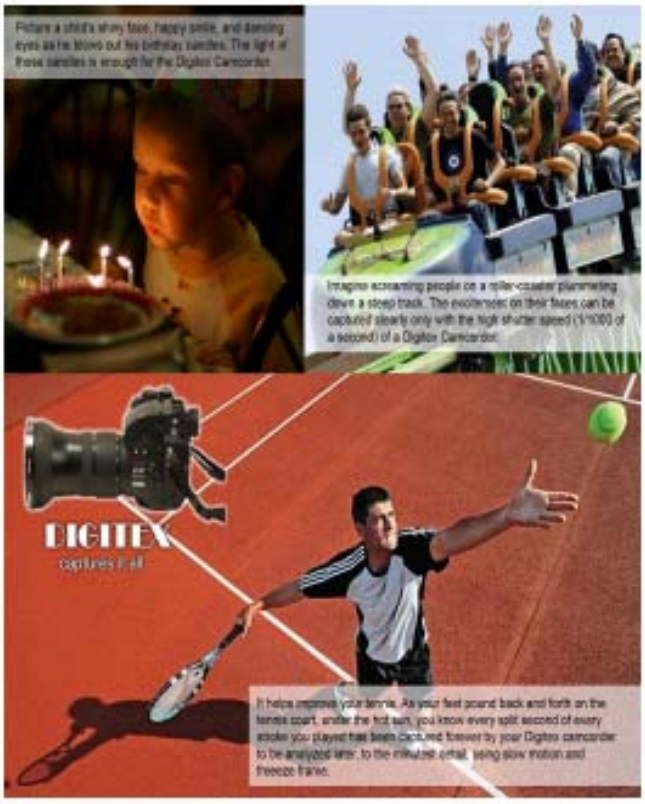


**Figure 7: Digitex: High imagery with picture**

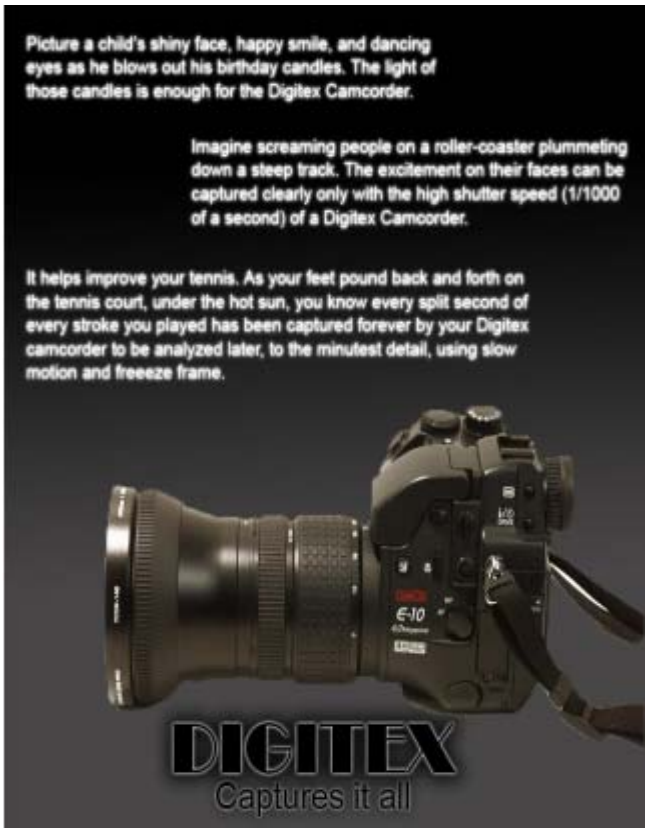


**Figure 8: Digitex: High imagery without picture**