

DOI: <https://doi.org/10.34069/AI/2024.73.01.12>

How to Cite:

Spasova, L. (2024). Gender and education as factors for determining the verbal-visual affiliation of individuals. *Amazonia Investiga*, 13(73), 155-164. <https://doi.org/10.34069/AI/2024.73.01.12>

Gender and education as factors for determining the verbal-visual affiliation of individuals

Пол и образование като фактори за определяне на вербално-визуалната принадлежност на индивидите

Received: December 1, 2023

Accepted: January 15, 2024

Written by:

Lyubomira Spasova¹ <https://orcid.org/0000-0002-1438-9104>

Abstract

Gender and education are two of the socio-demographic characteristics that are studied to establish individual differences in personality. The purpose of the present research is to determine the susceptibility of individuals to the VVQ, adapted and modified from Kirby et al., and to show the influence of gender and education in the segmentation of verbalizers, visualizers, and dreamers. In the study, a valid and reliable instrument for measuring susceptibility to VVQ, prepared in advance by the author, was applied. The results of the analysis of variance (ANOVA) have showed a strong susceptibility of respondents to the Verbalizer Scale of women, as well as susceptibility to the Dreamer Scale of men. When considering the influence of education on VVQ, it was found that respondents with a master's degree were highly visual, and respondents with a doctoral degree were highly verbal. On Dreamer Scale, susceptibility was greatest again among respondents with a doctoral degree. The results of the analysis of covariance (ANCOVA) indicated that male advertising consumers with a master's degree were more receptive to the Verbalizer Scale, as were female respondents with a doctoral degree relative to all other target groups. These scientific results can be useful for advertisers, marketers, as well as specialists in cognitive psychology.

Keywords: verbal-visual cognitive styles, advertising segmentation, VVQ.

Резюме

Полът и образованието са две от социодемографските характеристики, които се изследват за установяване на индивидуалните различия на личността. Целта на настоящото научно изследване е да установи каква е податливостта на индивидите към VVQ, адаптирана и модифицирана по Кърби и колектив, както и да покаже влиянието на пола и образованието при сегментиране на вербализатори, визуализатори и мечтатели. В изследването е приложен валиден и надежден инструмент за измерване на податливостта към VVQ, предварително подготвен от автора. Резултатите от анализа на вариациите (ANOVA) показват силна податливост на респондентите към Verbalizer Scale на жените, както и податливост към Dreamer Scale на мъжете. При отчитане на влиянието на образованието по VVQ се констатира, че високо визуални са респонденти с магистърска степен, а високо вербални – респонденти с докторска степен. По Dreamer Scale податливостта е най-голяма отново на респонденти с докторска степен. Резултатите от анализа на ковариацията (ANCOVA) показва, че потребителите на реклама с магистърска степен мъже са по-податливи към Verbalizer Scale, както и респонденти с докторска степен жени спрямо всички останали таргетирани групи. Тези научни резултати могат да бъдат полезни за рекламисти, маркетинголози, както и на специалисти в когнитивната психология.

Ключови думи: вербално-визуални когнитивни стилове, рекламна сегментация, VVQ.

¹ PhD in Social Communications and Information Sciences, Senior Lecturer, Trakia University, Faculty of Economics, Department of Social Sciences and Business Language Training, Strara Zagora, Bulgaria.  WoS Researcher ID: GYJ-1692-2022



Introduction

The verbal and visual components of advertising are a highly beneficial topic for exploration among researchers investigating cognitive styles – verbalizers versus visualizers, and some even as dreamers in information processing. In each advertisement, various visual and verbal effects are employed to influence consumers, and research is progressing in various directions. Researchers express different opinions on this matter in various fields (Wanta & Roark, 1994; Zillmann et al., 1999; Mendelson, 2001; Mendelson & Thorson, 2003). One perspective is that the intriguing aspects of visual information involve processing cognitive elements in advertising as a significant part of the consumer experience, evoking pleasant or unpleasant feelings (Lagerwerf et al., 2012, p. 1837). Furthermore, each metaphor in advertising can be interpreted differently by consumers with various characteristics. There is evidence that individual differences in personality and cognitive style affiliation influence how variables impact the ultimate responses of consumers. Despite these indications of effective influence, the researcher believes that the achieved effects on consumers belonging to different segments of the advertising audience are not sufficiently explored. This is the reason to explore new segments of users, divided into visualizers, verbalizers and dreamers, where other demographic characteristics are taken into account, as well as factors of achieved verbal-visual influence. In a number of scientific studies, the achieved effects of verbal-visual impact are discussed, but they have not sufficiently studied how the intangible benefits derive from the material aspects of the product or service offering (Phillips, 2000). In addition, it should be established in more detail which segments of consumers belonging to different genders and with different educational characteristics react more quickly to verbal-visual impact through advertising. In support of this statement are studies conducted in the late 1990s of the 20th century (Adaval & Wyer, 1998) and the beginning of the 21st century (Mattila, 1999), in which it was found that the use of narratives through pictures as a specific a type of visualization strategy, leads to more favorable evaluations of the various advertising media presented in the media. However, there is a need for new scientific evidence regarding the achievement of advertising effectiveness through verbalization and visualization as both user experience and user segmentation.

Literature review

The information processing process is complex and finds its empirical support, on the one hand, in the theory of limited capacity, in which a distinction is made between different channels of processing - visual and verbal (Lang et al., 2000; Lang et al., 2002), as well as in dual coding theory, where optimal coding of textual and visual information is observed (Paivio, 1986). In addition, research in the field of cognitive psychology shows that there are two types of information processing - verbal and visual or combined, because these are the two main components that make up any information system. Researchers have presented in their scientific works a number of different cognitive styles that can influence information processing and also directly relate to the perception of verbal-visual components in information processing (Witkin et al., 1977), in holistic and analytic processing, (Riding & Sadler-Smith, 1992), or reflective and impulsive processing (Holman, Snowman, & Deichmann, 1979). In media studies, scholars are interested in both cognitive styles and "viewing styles," or "patterns of behaviour involving choices that somehow influence attention and learning from television" (Miron, Bryant, & Zillmann, 2001, p. 157). Although viewing styles are related to learning styles, this concept of different cognitive styles is distinguished from individual learning styles. The issue in this direction needs to be more thoroughly researched and commented on, because it would make it easier for advertisers to create impactful advertisings. Other media studies on the perception of news messages have found that news photographs aid news processing in a variety of positive ways. Although support for this assumption has been mixed in social science research (Wanta & Roark, 1994; Mendelson, 2001; Mendelson & Thorson, 2003), research on how people learning from written material and images suggests that newspaper stories and pictures are the same for everyone as a way of perceiving but not as a way of responding. There are assumptions about the stronger influence of verbal elements, called verbal anchors, among print media, as well as greater resistance to the influence of visual elements in electronic media products. In other studies, the emphasis falls on visualization or achieving effectiveness in advertising through visual anchors. It should be pointed out that the visualization strategy in the media space, is based on the concept of vividness (Mittal, 1999). Ortony, Clore and Collins found in a number of their studies that vivid pictures as impact material are more persuasive because they arouse

consumer interest (Ortony, Clore & Collins, 2011). In turn, Keller, Punam and Block concluded that vivid information is easier for the user to perceive and process than non-vivid information (Keller et al., 1997), but according to Carolyn Tripp (1997) not all advertising media focus on the use of vivid, tangible cues (Tripp, 1997). In some cases, they rely on the content, the story that the picture itself tells, as well as the presence of verbal elements that attract the user's attention and stimulate interest.

Another approach to the interpretation of verbalization, according to information processing, is its perception and experience as part of contextual advertising. Assuming that one form of verbalization describes what we "perceive" more adequately than other perceivers, it tells us how we convert our "perceptions" into categories and concepts (Forceville, 1996, p. 133). From the previous studies, verbalization forms in advertising can be identified as several syntactic structures and the differences between them have been studied by many researchers (Forceville, 1996; Mashal et al., 2014). The researchers found, particularly relevant to media studies, the relative predispositions of individuals to learn from visual and verbal materials, and how people's "visualizing" and "verbalizing" cognitive styles influence their response to the environment as well as their ultimate behaviour. A high "verbalization" user is characterized by being word-oriented, showing high fluency with words, preferring to read for ideas, and enjoying word games. High "visualizers" are characterized by being image-oriented, preferring to be shown, and enjoying visual games such as puzzles (Jonassen & Grabowski, 1993; Riding & Ashmore, 1980). In earlier studies, the selection of perceivers was made along the opposite continuum: verbalizer/visualizer as two main extremes, but according to more modern views expressed by Mendelson and Thorson (2004), the two positions are perceived as separate and independent concepts, as not people are thought to be only visually or only verbally inclined, but rather show variation in both concepts (Mendelson, & Thorson, 2004). The concept of visual-verbal learning styles is similar to the concept of visual and verbal literacy, although the latter is closer to an ability, since many scholars define visual literacy as the learned ability to understand and interpret visual elements (Scott, 1994). Studies in this direction are becoming the subject of examination by psychologists, with the goal being to explain many individual personality traits of the learners, as well as of the perceivers of various media

products in particular. These claims are supported by educational research that confirms that the presence of pictures during instruction increases comprehension of text passages when the accompanying pictures are appropriate to the text (Levie & Lentz, 1982). Therefore, the segmentation of advertising consumers into separate groups with specific characteristics would facilitate the understanding of the perceived nature of verbal-visual information, as well as provide clarity on the question of the ultimate reactions of consumers to products and services.

Methodology

The purpose of the present study is to segment advertising users into several groups - verbalizers, visualizers and, according to the adapted and modified scale of Kirby, Moore and Schofield (1988) - Verbalizer-Visualizer Questionnaire (VVQ), as well as dreamers. Another research objective is to determine how gender and education of consumers affects the cognitive affiliation of respondents perceiving verbal-visual advertising information. To achieve this goal, the Verbalizer-Visualizer Questionnaire (VVQ) was applied as a reliable and valid instrument for measuring cognitive orientation. The study included 425 respondents who answered the Verbalizer-Visualizer Questionnaire (VVQ) to determine their cognitive affiliation of Kirby, Moore and Schofield's scale, consisting of 30 statements, with 10 statements defining high verbalizers, 10 high visualizers, and 10 high dreamers. The research methods are related to the following studies (Hair et al., 2003): 1) measuring the cognitive affiliation of users by the Verbalizer-Visualizer Questionnaire (VVQ) according; 2) segmentation of advertising consumers by gender and education, as well as their susceptibility to the Verbalizer-Visualizer Questionnaire (VVQ); 3) establishing some causal relationships between cognitive affiliation and some demographic characteristics of the respondents. Respondents answer all modules of the questionnaire using a five-point Likert-type scale, which includes ratings from 1 - Disagree to 5 - Agree. Cronbach's alpha was used to test the reliability of an adapted and modified version of the VVQ. The reliability of Verbalizer Scale is $\alpha=0.722$, the reliability of Visualizer Scale is $\alpha=0.739$, the reliability of Dreamer Scale is $\alpha=0.734$, For the whole sample, the Cronbach's alpha coefficient is $\alpha=0.783$. Since the values are close to or exceed the minimum recommended value of $\alpha=0.700$ (DeVellis, 2012), the internal consistency for the respective subscales is

sufficiently high, i.e. the elements that compose them form a common scale.

Results and discussion

The study was conducted in the period from September 2022 to September 2023. Self-reported data were collected from a total sample of 425 respondents distributed across gender and education age, ensuring a 95% representative size (being $e = \pm 5\%$; $p = q = 0.50$). Each case from the general population was equally likely to be included in the study. All respondents filled in the questionnaire on paper because this ensures the correctness of the answers. According to these criteria, the total sample was 39.3% male (167 people) and 60.7% female (258 people); and according to the education – 11.8 % (50 people) – Secondary school completed, 39.3% (167 people) – Higher secondary school completed, 18.1 % (77 people) – Bachelor degree completed, 22.8% (97 people) – Master degree completed, 8% (34 people) – PhD completed. To determine whether the adapted and modified scale of Kirby, Moore & Schofield, (1988) applied in the study was suitable for analysing the data obtained, a confirmatory factor analysis was carried out using a method of principal components (PCA) and orthogonal rotation using the Varimax method with Kaiser Normalization (Kaiser, 1974). 3 factors were determined as in the methodology of Kirby et al., (1988), with the first factor comprising 6 statements measuring dream vividness, a second factor combining 6 visualization statements, and a third factor consisting of 6 statements, measuring verbalizers. The remaining statements, which are

of lower factor bodies and do not form a factor, are not included in the formation of the three factors. According to some authors, only statements with factor weights greater than 0.500 should be analysed, that is, these are statements with the greatest weight and should play an important role for subsequent measurements (Ganeva, 2016, p. 340). To ensure the fit of the data, several well-known diagnostic checks were performed: 1) 30 statements showed correlations above 0.500 or higher with other items in the VVQ; 2) The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.697 for the entire sample ($N = 425$), which is above the recommended value of 0.600 (Kaiser, 1974). 3) Bartlett's test of sphericity was statistically significant for all subjects ($\chi^2_{(435)} = 4115.9$, $p < 0.000$), (Bartlett, 1954). The measure of adequacy was checked, as well as the adequacy for each subscale of the VVQ questionnaire, obtaining the following values: for Verbalizer Scale KMO was 0.689; for Visualizer Scale KMO was 0.734; for Dreamer Scale KMO was 0.612. Bartlett's tests of sphericity for each subscale were also statistically significant for all subjects ($p < 0.000$), (Bartlett, 1954).

To determine the influence of Verbalizer-Visualizer Questionnaire (VVQ) on different groups of respondents formed by gender, a one-way analysis of variance (ANOVA) was applied. The hypothesis that the arithmetic means of the persuasive principles were different with respect to gender was also tested, and the results of the one-factor analysis of variance (ANOVA) are presented in Table 1.

Table 1.
Influence of gender on susceptibility to VVQ (ANOVA)

| Independent variable | Dependent variable | F | p | Mean (Male) | Mean (Female) |
|----------------------|--------------------|---------|-------------|-------------|---------------|
| Gender | Verbalizer Scale | F=6.87 | $p < 0.01$ | 3.05 | 3.26 |
| | Visualizer Scale | F=0.003 | $p = 0.999$ | 2.72 | 2.72 |
| | Dreamer Scale | F=7.39 | $p < 0.01$ | 3.03 | 2.82 |

Results indicated that gender influenced susceptibility to the visualization subscale and the dreaming subscale, and overall susceptibility to persuasion was in the hypothesized direction. Susceptibility to visual information was achieved to a greater extent in women compared to men, where $F=6.87$; $p < 0.01$; x_2 (women) = 3.26; x_1 (male) = 3.05, and susceptibility to information stored through dreams is achieved to a greater extent in males than in females, where $F=7.39$; $p < 0.01$; x_1 (men) = 3.03, x_2 (women) = 2.82, (Table 1). According to research in this direction, it can be

argued that some individuals prefer visual information and products that emphasize the visual, as well as others who prefer written or verbal information. In our study, visual information, as well as information constructed in dreams, is essential because visual information processing differs from verbal information processing, as cognitive development affects the number of revisions as well as the duration of image fixation (Lang et al., 2002). Most of the results obtained support this correspondence, with researchers recommending that future

studies focus on the relationship between cognitive elaboration and imagery evaluation in general. (Lang et al., 2000; Graesser et al., 2005; Rayner et al., 2001). It should not be underestimated that some consumers use less verbal material and rely primarily on images when perceiving information from various sources, especially from an advertising medium (Riding & Douglas, 1993). According to the obtained results, women are shaped as better visualizers, that is, they perceive information visually faster, and men are better dreamers, that is, they create pictures with dreams. Previous studies have found that users differ in their

propensity to remember details from verbal and visual information (Riding et al., 1995). Further causal relationships between other demographic characteristics and susceptibility to Verbalizer-Visualizer Questionnaire (VVQ) should be found in future studies.

To determine individuals' susceptibility to verbal-visual cognitive styles shaped by education, a one-way analysis of variance (ANOVA) was applied. The results of the one-way analysis of variance (ANOVA) are presented in Table 2.

Table 2.
Influence of education on verbal-visual cognitive styles (ANOVA)

| Independent variable | Dependent variable | Mean | F | p-values |
|----------------------|---------------------|---|---------|-----------|
| Education | Visualizer Subscale | X ₁ (secondary school) = 3.07 | F=11.20 | p < 0.000 |
| | | X ₂ (Higher secondary school) = 2.98 | | |
| | | X ₃ (Bachelor degree) = 3.05 | | |
| | | X ₄ (Master degree) = 3.59 | | |
| | | X ₅ (PhD) = 3.36 | | |
| | Verbalizer Subscale | X ₁ (secondary school) = 2.83 | F=3.73 | p < 0.005 |
| | | X ₂ (Higher secondary school) = 2.63 | | |
| | | X ₃ (Bachelor degree) = 2.89 | | |
| | | X ₄ (Master degree) = 2.57 | | |
| | | X ₅ (PhD) = 2.99 | | |
| | Dreamer Subscale | X ₁ (secondary school) = 2.94 | F=3.74 | p < 0.005 |
| | | X ₂ (Higher secondary school) = 3.02 | | |
| | | X ₃ (Bachelor degree) = 2.76 | | |
| | | X ₄ (Master degree) = 2.71 | | |
| | | X ₅ (PhD) = 3.10 | | |

The results show that education affects the respondents' susceptibility to each of the cognitive styles, with the greatest susceptibility observed on the Visualizer Subscale, where F=11.20; p < 0.000, and individuals with a master's degree have the highest values - X₄ (Master degree) = 3.59. On the other subscales, it is found that the F values are very close, such as on the Dreamer Subscale F=3.74; p < 0.005, and the highest values are for individuals with a doctoral degree - X₅ (PhD) = 3.10 and on the Verbalizer Subscale F=3.73; p < 0.005, and the highest values are for individuals with a doctoral degree - X₅ (PhD) = 2.99, (Table 2). The highest and lowest mean values for the three subscales are presented. Because cognitive style is an individual's typical and consistent approach to acquiring, processing, and organizing information (Riding et al., 1995), it is very important to interpret cognitive styles as "individual variations in the way of perceiving, remembering and thinking, or as different ways of understanding, sorting, transforming and

using information" (Kogan, 1971, p. 244). In addition, we all differ in the way we interact with different information from different sources, which is also related to the knowledge we have acquired, argue other authors (Jonassen & Grabowski, 1993). Therefore, in processing information by the large inclinations of the studied individuals to visual information for individuals with a master degree, it is defined as an adaptive approach in the learning processes, because individuals with PhD show greater inclinations to verbal information, or information constructed at dreams. Styles themselves are considered a subset of personality because style is a fixed characteristic of an individual (Jackson & Lawty-Jones, 1996). In addition, cognitive styles differ from learning strategies, which are defined as ways used to deal with situations and tasks (Riding & Sadler-Smith, 1992), but they also differ from abilities, which refer to levels of skills (Jonassen & Grabowski, 1993). Of particular interest in this scientific work are the results derived from the relationship between

cognitive style and educational affiliation, because although they are not related to individual abilities, they show the verbal-visual tendencies of the examined persons in relation to acquired education. It should not be forgotten that our data are a snapshot of the problem at hand, and the search for more dependencies remains to be done in studies from different subject areas.

In order to establish causal relationships between gender and education the analysis of covariance (ANCOVA) was performed. To achieve this goal by applying an analysis of covariance (ANCOVA), (Field, 2013) the author can have determined whether there was a difference in susceptibility to one of the Verbalizer Scale and their acquired education (Kirby, Moore, & Schofield, 1988). In this analysis, the dependent variable is the verbalization subscale, education is used as the covariate because it is assumed that education and gender, measured simultaneously, can be controlled for in the statistical analysis when it comes to cognitive abilities. A new variable was introduced, and the respondents were divided according to the criterion of education with different age characteristics: 11.8% (50 people) with secondary education

(under 18 years old); 39.3% (167 people) with secondary special education (under 25 years old); 18.1% (77 people) with a bachelor's degree (over 25 years old); 22.8% (97 people) with a master's degree (over 25 years old) and 8% (34 people) with a doctoral degree (over 25 years old). The reason for this distribution is for the covariate to be a continuous quantitative variable. Before performing the ANCOVA, the following assumptions were checked: 1) checking the correlation between the verbalization scale and the covariate - user education as Pearson's correlation is a weak positive correlation - $r=0.222$; $p<0.000$, which means that the linear relationship is less than $r<0.800$; $p<0.000$; 2) the dependent variable is normally distributed - the values of the coefficients for asymmetry (Skewness) are -0.532 , and for (Kurtosis) kurtosis are -0.342 , that is, relatively close to zero, (Ganeva, 2016); 3) homogeneity of variation, i.e. similar variations were observed across groups. Before proceeding with an analysis of covariance (ANCOVA), it is necessary to present the means for the Verbalizer Subscale and education, before accounting for the interaction effect. Means before analysis of covariance (ANCOVA) are presented in Table 3.

Table 3.
Mean of Verbalizer Scale and education of respondents

| Verbalizer Subscale / Education | Means | N | Std. Deviation |
|---------------------------------|------------|----|----------------|
| Male | | | |
| Secondary school | Mean= 2.82 | 28 | 0.725 |
| Higher secondary School | Mean =2.60 | 72 | 0.694 |
| Bachelor degree | Mean= 2.69 | 27 | 0.581 |
| Master degree | Mean= 2.88 | 25 | 0.743 |
| PhD | Mean= 2.84 | 15 | 0.704 |
| Female | | | |
| Secondary school | Mean= 2.85 | 22 | 0.980 |
| Higher secondary School | Mean= 2.65 | 95 | 0.835 |
| Bachelor degree | Mean =3.00 | 50 | 0.940 |
| Master degree | Mean= 2.47 | 72 | 0.586 |
| PhD | Mean= 3.11 | 19 | 0.807 |

Male respondents with a master's degree and female doctoral respondents had the highest means: Mean=2.88 and Mean=3.11 on the Kirby et al. (1988) Verbalizer Subscale, with similar standard deviations, indicating that the subscale in each group is equally dispersed. It is assumed that the education of the respondents with different age characteristics can be influenced by the gender of the subjects on the measured subscale, therefore a

covariance analysis (ANCOVA) is applied. The results of the analysis of covariance are as follows: Levene's test is statistically insignificant - $p=0.318$, which indicates that the group variances are equal and the assumption of homogeneity of variance is not violated (Ganeva, 2016); The results of the analysis of covariance (ANCOVA) are presented in Table 4, (Table 4).

Table 4.
Influence of gender on Verbalizers Scale according to education (ANCOVA)

| Verbalizer Subscale | df | Mean Square | F / p-values | Partial Eta Squared |
|---------------------|-----|-------------|-------------------|---------------------|
| Gender | 1 | 0.162 | F=0.277;p= 0.599 | 0.01 |
| Education | 4 | 1.366 | F= 2.34; p < 0.05 | 0.22 |
| Gender/Education | 4 | 1.399 | F=2.39; p < 0.05 | 0.23 |
| Error | 415 | 0.584 | Adju. R Squared = | |
| Total | 425 | | 0.052. | |

A statistically significant interaction effect of respondents' gender and education was found on the Verbalizer Subscale, where $F_{(4,415)} = 2.39$, $p < 0.05$, $\eta^2 = 0.23$, which according to Cohen (1988) is a medium effect size. The Partial Eta Squared results indicated that more than 2% of the variance of the dependent variable - Verbalizer Subscale was predicted by education, with Adjusted R Squared = 0.052, (Table 4). The two independent variables were analyzed separately and the main effect for the independent variable gender was not statistically significant $F_{(1,424)} = 0.277$, $p < 0.599$ in the analysis of covariance (ANCOVA), i.e. there was

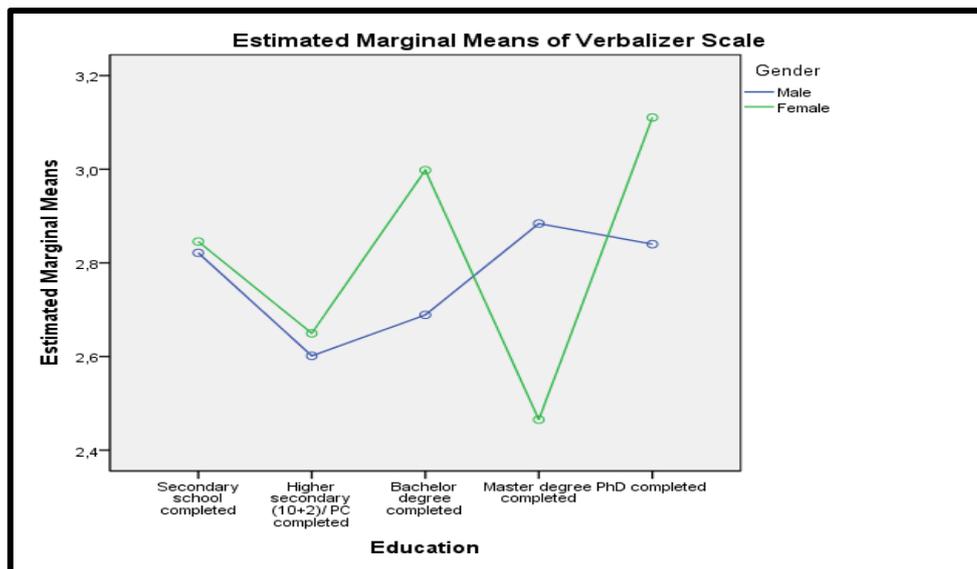
no statistically significant difference when the Verbalizer Subscale was applied by gender. The main effect for the other independent variable – education was statistically significant, where $F_{(4,415)} = 2.34$, $p < 0.05$, because there was a statistically significant difference in the measurement of Verbalizer Subscale by education. Cohen's interpretation of η^2 , $0.24 \leq \eta^2 < 0.37$, indicated that a weak effect size value was observed, $\eta^2 = 0.22$. After performing the analysis of covariance, the adjusted means for the study groups are presented in Table 5, controlling for the covariate – education with age difference, (Table 5).

Table 5.
Adjusted means for Verbalizers Subscale controlling for the covariate (ANCOVA)

| Verbalizer Subscale / Education | Means | Std. Error |
|---------------------------------|-------------------------|------------|
| Male | Secondary school | Mean= 2.82 |
| | Higher secondary School | Mean=2.60 |
| | Bachelor degree | Mean=2.69 |
| | Master degree | Mean=2.90 |
| | PhD | Mean=2.84 |
| Female | Secondary school | Mean=2.85 |
| | Higher secondary School | Mean=2.65 |
| | Bachelor degree | Mean=3.00 |
| | Master degree | Mean=2.57 |
| | PhD | Mean=3.15 |

After analysis of covariance (ANCOVA) it is found that male and female with master degree have an interaction effect, with the mean values for men being - Mean=2.90 and for women - Mean=2.57, therefore the effect is greater for male with Master degree relative to women of the same group. The second interaction effect is for respondents with a doctorate degree, with the average values for men being - Mean=2.85 and

for women - Mean=3.15, therefore the effect is greater for women with master degree than men of the same group, (Graph 1). The results showed that susceptibility to the Kirby et al. (1988) - Verbalizer Subscale was determined by gender, with the intersection of the arithmetic means of users with a master's degree and a doctorate confirming an interaction effect when combined measuring respondents' education, (Graph 1).



Graph 1. Susceptibility to Verbalizer Subscale on gender and education.

The significance of the latter measure indicates that gender as a factor can determine susceptibility to the Verbalizer Subscale only when the subjects' education is also taken into account. Such statistical significance could not be established by the one-way analysis of variance (ANOVA) that was performed on the gender distribution. These results confirm the findings of other researchers who indicate that verbalization in all its dimensions: "verbal anchors," (McQuarrie & Phillips, 2005) "documentation," (Mattila, 2000) "verbalization styles on memory" or "styles of cognitive verbalization," "cognitive user preferences," (Kirby, Moore, & Schofield 1988) "verbal structures" (Phillips, 2000), is associated with certain semantic operations, because they have different interpretations among individual users, and education is also measured in our analysis. Establishing a relationship between different factors characterizing individuals when processing verbal components can contribute to a more accurate understanding of the processes taking place when processing verbal information. In addition, researchers find a relationship between visual metaphors and verbal structures in advertisements because the former aid the perceived essence of the latter in individuals' interpretation of information (McQuarrie & Phillips, 2005).

Conclusion

In the processing information, researchers very often look for dependencies between the cognitive affiliation of individuals and their final reactions to verbal-visual information. The present study attempted to segment respondents

into verbalizers, visualizers, and dreamers, finding that on the Verbalizer-Visualizer Questionnaire (VVQ), and female respondents are susceptible to the Verbalizer Scale, and male respondents are susceptible to the Dreamer Scale. No statistically significant results were found on the Visualizer Scale. Therefore, women process verbal information in advertising more easily, and men respond positively to information that is induced by the vividness of the dream. When segmenting users according to the criterion of education, it was found that highly visual abilities are possessed by individuals with a master's degree, and verbal by users with a doctoral degree, that is, with an increase in educational abilities in various qualification and scientific fields, respondents show verbal abilities more than visual abilities. On the subscale measuring dream vividness, the biggest dreamers again appeared to be advertising consumers with doctoral degree.

The researcher of the present scientific paper also made additional measurements, and different solutions were sought, but a statistically significant result was found when measuring respondents' gender and education at the same time, inferring susceptibility to the Verbalizer Scale. Male advertising consumers with a master's degree are more susceptible to the Verbalizer Scale than female advertising consumers of the same degree. The second interaction effect was female with doctoral degree respondents who were most receptive to the Verbalizer Scale relative to all other target groups. The significance of the latter measure indicates that gender as a factor can determine susceptibility to the Verbalizer Subscale only

when the subjects' education is also taken into account. These results confirm the findings of other researchers who indicate that verbalization in all its dimensions: verbal anchors, documentation, verbalization styles on memory or styles of cognitive verbalization, cognitive user preferences, verbal structures, is associated with certain semantic operations because have different interpretations among individual users, and education is also measured in our analysis. In our study, a strong response was observed on the part of men with a master's degree and women with a doctorate degree to verbal information. These scientific results can serve many advertising researchers, some marketers, as well as cognitive psychology and communication specialists to properly segment advertising consumers.

Bibliographic references

- Adaval, R., & Wyer, R. (1998). The Role of Narratives in Consumer Information Processing. *Journal of Consumer Psychology*, 7(3), 207-46. https://doi.org/10.1207/s15327663jcp0703_01
- Bartlett, S. (1954). A note on the multiplying factors for various chi square approximations. *Journal of the Royal Statistical society*, (16), 296-8. <https://doi.org/10.1111/j.2517-6161.1954.tb00174.x>
- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences*. Lawrence Erlbaum Associates. 2nd Edition, pp 567. <https://doi.org/10.4324/9780203771587>
- DeVellis, R. (2012). Scale development: Theory and application. (3rd ed.) SAGE Publications, 31(1), 79-82. <https://www.jstor.org/stable/1435099>
- Forceville, C. (1996). *Pictorial Metaphor in Advertising*. London: Routledge. <https://doi.org/10.4324/9780203064252>
- Ganeva, Z. (2016). *Let's reinvent statistics with IBM SPSS Statistics*. Elestra. Doi: 10.13140/RG.2.1.2803.6080
- Graesser, A., Olde, S., Shulan Lu., Cooper-Pye, E., & Whitten, S., (2005). Question asking and eye tracking during cognitive disequilibrium: comprehending illustrated texts on devices when the devices break down. *Memory & Cognition*, 33(7), 1235-1247. DOI: 10.3758/bf03193225
- Hair, J. F., Bush, R. P., & Ortinau, D. J. (2003). *Marketing research: Within a changing information environment*. New York, NY.: McGraw-Hill. ISBN 0073404705, 9780073404707
- Holman, L. R., Snowman, J., & Deichmann, J. (1979). The effect of stimulus presentation mode and cognitive style on sentence recognition memory. *Journal of Educational Research*, 72(4), 224-228. <https://doi.org/10.1080/00220671.1979.10885159>
- Jackson, C., & Lawty-Jones, M. (1996). Explaining the overlap between personality and learning style. *Personality and Individual Differences*, 20(3), 293-300. [https://doi.org/10.1016/0191-8869\(95\)00174-3](https://doi.org/10.1016/0191-8869(95)00174-3)
- Jonassen, D. H., & Grabowski, B. L. (1993). *Handbook of individual differences, learning and instruction*. Hillsdale, NJ: Erlbaum. <https://doi.org/10.4324/9780203052860>
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31-36. <https://doi.org/10.1007/BF02291575>
- Keller, P. A., & Block, L. G. (1997). Vividness effects: A resource-matching perspective. *Journal of Consumer Research*, 24(3), 295-304. <https://doi.org/10.1086/209511>
- Kirby, J. R., Moore, P. J., & Schofield, N. J. (1988). Verbal and visual learning styles. *Contemporary Educational Psychology*, 13(2), 169-184. [https://doi.org/10.1016/0361-476X\(88\)90017-3](https://doi.org/10.1016/0361-476X(88)90017-3)
- Kogan, N. (1971). Educational implications of cognitive styles. In GS Lesser (Ed.), *Psychology and educational practice* (pp. 242-292). Glenview, IL: Scott. Foresman.
- Lagerwerf, L., van Hooijdonk, C., & Korenberg, A. (2012). Processing visual rhetoric in advertisements: Interpretations determined by verbal anchoring and visual structure. *Journal of Pragmatics*, 44(13), 1836-1852. <http://dx.doi.org/10.1016/j.pragma.2012.08.009>
- Lang, A., Borse, J., Wise, K., & David, P. (2002). Captured by the World Wide Web: orienting to structural and content features of computer-presented information. *Communication Research*, 29(3), 215-245. <https://doi.org/10.1177/009365020202900301>
- Lang, A., Zhou, S., Schwartz, N., Bolls, P.D., & Potter, R.F., (2000). The effects of edits on arousal, attention and memory for television messages: when an edit is an edit can an edit be too much? *Journal of Broadcasting & Electronic Media*, 44(1), 94-109. Doi: 10.1207/s15506878jobem4401_7

- Levie, W. H., & Lentz, R. (1982). Effect of text illustrations: A review of research. *Education and Communication Technology Journal*, 30(4), 195-232. <https://psycnet.apa.org/record/1983-28980-001>
- Mashal, N., Shen, Y., Jospe, K., & Gil, D. (2014). Language effects on the conceptualization of hybrids. *Language and Cognition*, 6(2), 217-241. Doi: 10.1017/langcog.2014.6
- Mattila, A. S. (2000). The Role of Narratives in the Advertising of Experiential Services. *Journal of Service Research*, 3(1), 35-45. <https://doi.org/10.1177/109467050031003>
- McQuarrie, E.F., & Phillips, B.J. (2005). Indirect persuasion in advertising. How consumers process metaphors presented in pictures and words. *Journal of Advertising*, 34(2), 7-20. <https://www.jstor.org/stable/4189294>
- Mendelson, A. L. (2001). Effects of novelty in news photographs on attention and memory. *Media Psychology*, 3(2), 119-157. https://doi.org/10.1207/S1532785XMEP0302_02
- Mendelson, A. L., & Thorson, E. L. (2003). The impact of role - congruency and photo presence on the processing of news stories about Hillary Clinton. New Jersey. *Journal of Communication*, 11(2), 135-148. Doi: 10.1080/15456870309367444
- Mendelson, A. L., & Thorson, E. (2004). How verbalizers and visualizers process the newspaper environment. *Journal of Communication*, 54(3), 474-491. <https://doi.org/10.1111/j.1460-2466.2004.tb02640.x>
- Miron, D., Bryant, J., & Zillmann, D. (2001). *Creating vigilance for learning from television*. Handbook of children and the media. In D. G. Singer & J. L. Singer (Eds.), (pp. 153-181). Thousand Oaks, CA: Sage.
- Mittal, B. (1999). The Advertising of Services: Meeting the Challenge of Intangibility. *Journal of Service Research*, 2(1), 98-116. <https://doi.org/10.1177/109467059921008>
- Ortony, A., Clore, G. L., & Collins, A. (2011). *The Cognitive Structure of Emotion*. University of Illinois. Cambridge University Press, 1988. <https://doi.org/10.1017/CBO9780511571299>
- Paivio, A. (1986). *Mental Representations: A Dual Coding Approach*. Oxford University Press, Oxford. <https://doi.org/10.1093/acprof:oso/9780195066661.001.0001>
- Phillips, B.J. (2000). The impact of verbal anchoring on consumer response to image ads. *Journal of Advertising*, 29(1), 15-25. <https://www.jstor.org/stable/4189131>
- Rayner, K., Rotello, C., Stewart, A., Keir, J., & Duffey, S.A. (2001). Integrating text and pictorial information: eye movements when looking at print advertisements. *Journal of Experimental Psychology: Applied*, 7(3), 219-226. Doi: 10.1037//1076-898x.7.3.219
- Riding, R. J., & Ashmore, J. (1980). Verbaliser-imager learning style and children's recall of information presented in pictorial versus written form. *Educational Studies*, 6(2), 141-145. <https://doi.org/10.1080/0305569800060204>
- Riding, R. J., & Douglas, G. (1993). The effect of cognitive style and mode of presentation on learning performance. *British Journal of Educational Psychology*, 63(2), 297-307. Doi: 10.1111/j.2044-8279.1993.tb01059.x
- Riding, R. J., & Sadler-Smith, E. (1992). Type of instructional material, cognitive style and learning performance. *Educational Studies*, 18(3), 323-340. <https://psycnet.apa.org/doi/10.1080/0305569920180306>
- Riding, R. J., Burton, D., Rees, G., & Sharratt, M. (1995). Cognitive style and personality in 12-year-old children. *British Journal of Educational Psychology*, 65(1), 113-124. <https://doi.org/10.1111/j.2044-8279.1995.tb01135.x>
- Scott, L. M. (1994). Images in advertising: The need for a theory of visual rhetoric. *Journal of Consumer Research*, 21(2), 252-272. <https://www.jstor.org/stable/2489819>
- Tripp, C. (1997). Services Advertising: An Overview and Summary of Research, 1980-1995. *Journal of Advertising*, 26(4), 21-38. <https://www.jstor.org/stable/4189048>
- Wanta, W., & Roark, V. (1994). Responses to photographs. *Visual Communication Quarterly*, 1(2), 12-13. <https://doi.org/10.1080/15551393.1994.10387493>
- Witkin, H. A., Moore, C. A., Goodenough, D. R., & Cox, P. W. (1977). Field-dependent and field-independent cognitive styles and their educational implications. *Review of Educational Research*, 47(1), 1-64. <https://doi.org/10.3102/00346543047001001>
- Zillmann, D., Gibson, R., & Sargent, S. L. (1999). Effects of photographs in news-magazine reports on issue perception. *Media Psychology*, 1(3), 207-228. https://doi.org/10.1207/s1532785xmep0103_2