

ZMET-Analysis of Communication Codes of Visual Nature

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Abstract. Modern communication models mostly concentrate on the clear of message and its nature, but only few of them try to influence unconscious and operate with common communication codes. In this article the authors analyze the results of ZMET-analysis of classical Russian visual symbols (such as famous writers and others) in order to evaluate the hypothesis of impact of these symbols to generate the directed psycho-emotional conditions of the audience and operate with its influence.

1. Introduction

The conducted research confirms the hypothesis of impact of visual symbols to generate the directed psycho-emotional conditions of the audience. The research was conducted in the spring of 2018 in the student's environment of the Plekhanov Russian University of Economy by a questionnaire method. Questioning of respondents was carried out by means of presentation of a randomized number of well-known visual images with a task to choose unlimited number of the personal associations from the offered list of psycho-emotional states. Such technique of poll protects results from intended distortion from respondents. Further the statistical analysis of results of a biographical stage for creation of probable model of existence of archetypes in the form of associations with high and average degree of probability was carried out.

During the analysis it was established that three of seven the tested image strongly shown archetypes in the subconscious field of mentality of respondents, and four – the average force of manifestation. At the same time only two of seven tested images confirmed the archetypic associations whereas five – pointed to change of archetypic associations. Besides, it was revealed that all tested visual images have besides the main psycho-emotional association also loop collateral, and in some cases mirror on an emotional background. It is expedient to use this econometric model in visual channels of communications with the entrants having the age category uniform with the examined group of respondents. Application of the specified model will allow generating target psycho-emotional conditions of entrants for the directed support of their decision on the choice of the place of the training

2. Classical cultural images ZMET-analysis

During the research were interviewed 603 respondents in order to study the method of extracting metaphors (ZMET) of the presence of archetypes in the subconscious psyche of a homogeneous non-

representative sample of respondents. The main hypothesis of the research was that it is possible to generate directional psycho-emotional states of the audience with the help of visual symbols.

To test the hypothesis, a probabilistic model was built on the basis of the results of the research carried out on the seven test images that showed the best recognition in a youth student environment in a pilot study.

Denote by personalities A_i – as one of the tested images ($i = 1, \dots, 7$):

A1 – M.V. Lomonosov;

A2 – hero Ilya Muromets;

A3 – open wallet with money;

A4 – matryoshka;

A5 – Gorgon Medusa;

A6 – Alexander Pushkin;

A7 – Dionysus.

Variants of alternatives of emotional states were marked B_j ($j = 1, \dots, 18$):

B1 – invigorates, improves mood, promises pleasure, relieves depression;

B2 – depressing;

B3 – concentrates attention;

B4 – distracts;

B5 – soothes in stressful situations, relieves fatigue and sadness;

B6 – promotes inner harmony;

B7 – enhances sexual arousal;

B8 – sexual arousal;

B9 – reduces pain;

B10 – improves eyesight;

B11 – whets the appetite;

B12 – reduces appetite;

B13 – causes fear;

B14 – reduces fear;

B15 – causes a sense of profitable acquisition;

B16 – causes a feeling of annoying loss;

B17 – causes the opportunity to get immortality;

B18 – causes a feeling of reliable protection.

The psycho-emotional states caused by the tested visual images are summarized in Tab. 1, the elements of which are the values of n_{ij} – the number of responses of the psycho-emotional state B_j when considering the image A_i .

The probability of manifestation of one of the alternatives of emotional states when considering the corresponding image will be determined as the conditional probability of the event B_j when choosing A_i , and is denoted as $P_{A_i}(B_j)$:

$$P_{A_i}(B_j) = \frac{n_{ij}}{n},$$

where n_{ij} – is the number of responses with the choice of a specific alternative to the psycho-emotional state of B_j when considering the image A_i (elements of Tab. 1);

n – is the number of respondents (sample size).

The probability that the type of image M.V. Lomonosov (A_1) invigorates (B_1) or depressive (B_2) differs slightly:

$$P_{A_1}(B_1) = 0,10 \approx P_{A_1}(B_2) = 0,08.$$

Consequently, it is impossible to draw a conclusion about the priority of the psycho-emotional state of B_1 (wakefulness) or B_2 (depression) among the respondents. A similar conclusion can be made about most of the analyzed psycho-emotional states when considering the image of A_1 .

Ranging of analyzed psycho-emotional states by probability manifestation when considering the image of M.V. Lomonosov it is clear that B3 (concentration of attention) stands out in the first place in the manifestation of emotional states. In second place, behind only 6%, is B8 – a decrease in sexual arousal.

Consequently, the image of M.V. Lomonosov surveyed the audience acts as a sedative, unexcited

$$f(A_1) = \{B_3, B_8\}.$$

Since all the probabilities B_j when considering the image of A_1 are less than 0.3, the influence of the image of M.V. Lomonosov on the manifestation of any of the analyzed psycho-emotional states is small:

$$P_{A_1}(B_j) \leq 0,27.$$

An analysis of the image of the hero Ilya Muromets shows that the dominant psycho-emotional state is a feeling of reliable protection (B18):

$$P_{A_2}(B_{18}) = 0,65,$$

i.e. 65% of all respondents showed this condition. Among the other alternatives, you can also select the state B14 (fear reduction) and B3 (attention concentration):

$$P_{A_2}(B_{14}) = 0,28, \quad P_{A_2}(B_3) = 0,27.$$

The probabilities of these states show that about 30% of respondents point to these psycho-emotional states, among other alternatives. These alternatives occupy the first three lines in the ranking.

Consequently, the surveyed audience assesses the image of the Ilya Muromets as protecting with a decrease in the level of fear during attention concentration:

$$f(A_2) = \{B_{18}, B_{14}, B_3\}.$$

An analysis of image of open wallet with money shows that this is one of the most active images that cause the manifestation of a larger number of analyzed psycho-emotional states, although their activation does not exceed 50%:

$$P_{A_3}(B_{16}) = 0,47; P_{A_3}(B_{15}) = 0,46; P_{A_3}(B_1) = 0,46,$$

i.e., about 50% of respondents identify both the state of annoying loss (B16) and the state of profitable acquisition (B15), and at the same time, the same number of subjects emits state B1 – invigorates, improves mood, promises pleasure, relieves depression. When reviewing the image of A_3 , about 30% of respondents note calm in stressful situations, the removal of fatigue and sadness, 26% of respondents show reduced pain and 20% – appetite stimulation:

Consequently, the influence of the image of an opened wallet with money can be described as an image that foreshadows both loss and profitable acquisition and uplifting for the surveyed audience:

$$f(A_3) = \{B_{16}, B_1, B_{15}, B_9\}.$$

An analysis of image of matrioska (Russian national doll) shows that the dominant psycho-emotional state is B1 – invigorates, uplifting, promises pleasure, relieves depression:

$$P_{A_4}(B_1) = 0,36,$$

i.e. 36% of all respondents confirmed this condition. The probabilities that the A_4 image distracts (B4) or reduces fear (B14) are low and slightly different from each other, but for this image are also dominant:

$$P_{A_4}(B_4) = 0,26 \approx P_{A_4}(B_{14}) = 0,25.$$

The ranking of psycho-emotional states according to their probabilistic manifestation when considering the image of matrioshka is reflected in the Tab. 6, from which it is clear that alternative B1 is in the first place, B4 in the second, B14 in the third, and B5 in the fourth. Consequently, the image of the matrioshka affects the surveyed audience as uplifting, distracting, reducing fear and calming:

$$f(A_4) = \{B_1, B_4, B_{14}, B_5\}.$$

An analysis of Gorgon Medusa's image shows that this is the most active image that causes activation of a larger number of analyzed psycho-emotional states. 64% of respondents fear this image:

$$P_{A_5}(B_{13}) = 0,64.$$

At the same time, 50% of respondents noted that the A5 image is depressing:

$$P_{A_5}(B_2) = 0,50.$$

The dominant states for this image are B12 – decrease in appetite and B8 – decrease in sexual arousal.

The ranking of the psycho-emotional states indicated by the respondents by the frequency of their probabilistic manifestation when considering the image of the Gorgon Medusa is reflected in the Tab. 7, from which it is clear that in the first place with dominance in its manifestation is the alternative B13, in the second – B2, in the third – B12, in the fourth – B8. Consequently, respondents assess the image of the Gorgon Medusa as awesome and depressive, causing a decrease in appetite and sexual arousal:

$$f(A_5) = \{B_{13}, B_2, B_{12}, B_8\}.$$

Analysis of image of A.S. Pushkin shows that the dominant alternative is B6 – contributes to internal harmony:

$$P_{A_6}(B_6) = 0,27,$$

i.e. 27% of all respondents confirmed this condition, and for 23% of respondents, this image focuses attention (B3):

$$P_{A_6}(B_3) = 0,23.$$

The ranking of alternatives of psycho-emotional states according to the frequency of their probabilistic manifestation when considering the image of A.S. Pushkin is reflected in the Table 8, from which it is clear that alternative B6 comes first, B3 second. Thus, the influence of the image of A.S. Pushkin on the surveyed audience can be described as harmonizing, concentrating attention:

$$f(A_6) = \{B_6, B_3\}.$$

However, since all the probabilities of B_j , when considering the image of the A6, are less than 0.3, it is impossible to conclude that the potential impact of the image of A.S. Pushkin on the generation of the analyzed psycho-emotional states among representatives of the surveyed audience is

$$P_{A_6}(B_j) \leq 0,27.$$

An analysis of Image of Dionysus, shows that the image of A7 is the most dominant in the manifestation of the considered alternatives of psycho-emotional states (see Fig. 1).

The dominant psycho-emotional state caused by this image is B11 – stimulation of appetite:

$$P_{A_7}(B_{11}) = 0,40.$$

40% of all respondents indicated this condition. Among the assessed alternatives can also be distinguished B6 – contributes to inner harmony:

$$P_{A_7}(B_6) = 0,30.$$

In addition, the alternative to B5 (soothes in stressful situations, relieves fatigue and sadness) is also significant:

$$P_{A_7}(B_5) = 0,27.$$

The ranking of the assessed psycho-emotional states by the frequency of their probabilistic manifestation when considering the image of Dionysus is reflected in the Table 9, from which it is clear that B11 is in the first place, B6 is in the second place, and B5 is in the third. For this image, such states as B17 are also quite significant – causing an opportunity to get immortality (fourth place), B1 – invigorates, uplifting, promises pleasure, relieves depression (fifth place), B9 – reduces pain (sixth place). Consequently, the image of Dionysus by the surveyed audience is assessed as

stimulating appetite, causing inner harmony and calming, as well as giving immortality, uplifting, reducing pain:

$$f(A_7) = \{B_{11}, B_6, B_5, B_{17}, B_1, B_9\}.$$

On the basis of the performed calculations, it is possible to derive a function of the frequency of occurrence of alternatives to psycho-emotional states:

$$f(A_i) = \begin{cases} \{B_3, B_8\}, i = 1; \\ \{B_{18}, B_{14}, B_3\}, i = 2; \\ \{B_{16}, B_1, B_{15}, B_9\}, i = 3; \\ \{B_1, B_4, B_{14}, B_5\}, i = 4; \\ \{B_{13}, B_2, B_{12}, B_8, B_4\}, i = 5; \\ \{B_6, B_3\}, i = 6; \\ \{B_{11}, B_6, B_5, B_{17}, B_1, B_9\}, i = 7. \end{cases}$$

The most active image is A7 – Dionysus, since it has the greatest number of manifestations of psycho-emotional states with a probability of more than 20%.

The strongest are the images of the warrior Ilya Muromets (A2) and the Gorgon Medusa (A5), since they can cause certain states with a probability of more than 50%.

The weakest are the images of M.V. Lomonosov (A1) and A.S. Pushkin (A6).

Analyzing the data tab. 2, we can conclude that the manifestations of the psycho-emotional state of B7 (increased sexual arousal) when considering all the proposed images does not exceed 20%:

$$P_{A_i}(B_7) \leq 0,2.$$

It can be concluded that the manifestation of B10 is insignificant (improved vision):

$$P_{A_i}(B_{10}) \leq 0,17.$$

From the results it can be seen that the likelihood that viewing images invigorates, improves mood, promises pleasure, relieves depression (B1) or introduces depression (B2) does not exceed 50%, i.e.

$$P_{A_i}(B_1) < 0,50,$$

$$P_{A_i}(B_2) \leq 0,50.$$

From the research it can be seen that the probabilities that the test images concentrate attention (B3) and distract (B4) are less than 30%, i.e.

$$P_{A_i}(B_3) < 0,30,$$

$$P_{A_i}(B_4) < 0,30.$$

From the results it can be seen that the likelihood that examining the test images enhances (B7) or reduces (B8) sexual arousal is less than 40%, i.e.

$$P_{A_i}(B_7) \leq 0,20,$$

$$P_{A_i}(B_8) < 0,40.$$

From previous results, it is clear that the probabilities that the test images calm down in stressful situations, relieve fatigue and sadness (B5), less than 30% of respondents; contribute to inner harmony (B6) – no more than 30%; reduce pain (B9) – less than 30%; improve eyesight (B10) – less than 20%; cause the opportunity to get immortality (B17) – less than 30%; causes a feeling of reliable protection (B18) – no more than 65% of respondents.

3. Study results

On the basis of the conducted studies and the subsequent statistical analysis of their results, it was revealed that the hypothesis about the predictability of the type of psycho-emotional state among students was confirmed by visual contact with visual images in relation to three of the seven tested

images. At the same time, together with the main type of the specified state, there is a trail of side alternatives, which makes these images emotionally richer, penetrating deep into the subconscious region of the psyche.

The main points identified as a result of the research are that the tested images are perceived by the surveyed audience as:

- Ilya Muromets – protects (65% probability of manifestation) with a decrease in the level of fear during concentration
- Gorgon medusa – frightening (the probability of manifestation – 64%) and enters into depression (the probability of manifestation – 50%), and also reduces appetite (the probability of manifestation – 48%) and sexual arousal
- Open wallet with money - double meaning: both a precursor of loss (probability of manifestation – 47%) and promise of a profitable acquisition (probability of manifestation – 46%), entailing elevation of mood (probability of manifestation – 46%).
- The image of Dionysus showed the average generation potential of the tested psycho-emotional that states increasing of the appetite (the probability of manifestation is 40%), promotes internal harmony (the probability of manifestation is 30%), relieves fatigue and sadness and improves mood (the probability of manifestation is 27%).

The same average force of the directed generation in relation to the studied states was shown by the rest of the tested images: the nested doll lifts the mood (the probability of manifestation is 36%), the profile of M.V. Lomonosov - concentrates attention (probability of manifestation – 27%) and the recognizable profile of A.S. Pushkin – promotes inner harmony (the probability of manifestation – 27%).

The most frequently manifested (64-65% probability of manifestation) psycho-emotional states in the surveyed audience during eye contact with the test images are feelings of fear and protection. These conditions should be used to stimulate the activities of the surveyed audience through the motivation and demotivation of target behaviors.

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