

Научная статья

УДК 81.112

DOI 10.52070/2542-2197_2023_4_872_86



Анализ эмоциональных состояний в условиях цифровой коммуникации

Р. К. Потапова¹, В. В. Потапов²

¹Московский государственный лингвистический университет, Москва, Россия,

²Московский государственный университет им. М. В. Ломоносова, Москва, Россия

¹RKpotapova@yandex.ru

²Volikpotapov@gmail.com

Аннотация. Цифровизация в области гуманитарных наук рассматривается как современный технологический процесс цифрового кодирования и декодирования в определенном формате всех видов гуманитарной информации, образующей определенную информационную среду. Изучение этой среды включает следующие аспекты: семиотический, семантический, эмоциогенный, валеологический и др. Особое внимание уделяется разработке итеративной модели, в рамках которой анализируются особенности динамики преобразования оригинального цифрового текста во вторичный цифровой интертекст и далее в третичный и n-тичный интерпретативный текст на выходе коммуникативного пространства, что приводит, по нашему мнению, к появлению по существу абсолютно нового текста, более того преобразованного с помощью специальных программ цифровой цензуры и цифрового редактирования в абсолютно новый текст. В связи с этим нами вводится понятие цифрового квазитекста, содержащего преобразованную сетевую информацию с элементами эмоциогенности и токсичности.

Ключевые слова: цифровая гуманитаристика, цифровая коммуникация, «портрет человека», психологический портрет молодых пользователей, эмоциогенность, токсичность, цифровой интер- и квазитекст

Благодарности: Работа выполнена при поддержке Российского научного фонда (РНФ), проект No 22-28-01050.

Для цитирования: Потапова Р. К., Потапов В. В. Анализ эмоциональных состояний в условиях цифровой коммуникации // Вестник Московского государственного лингвистического университета. Гуманитарные науки. 2023. Вып. 4 (872). С. 86–96. DOI 10.52070/2542-2197_2023_4(872)_86

Original article

Sentiment Analysis of Digital Communication

Rodmonga K. Potapova¹, Vsevolod V. Potapov²

¹Moscow State Linguistic University, Moscow, Russia

²Lomonosov Moscow State University, Moscow, Russia

¹RKpotapova@yandex.ru

²Volikpotapov@gmail.com

Abstract. Digitalization in the field of the humanities is considered as a modern technological process of digital coding and decoding in a certain format of all types of humanitarian information that forms a certain information environment. The study of this environment includes many aspects: semiotic, semantic, emotional, valeological, etc. Special emphasis is given to the development of an iterative model, the analysis of which includes the dynamics of the transformation of the original digital text into a secondary digital intertext and then into a tertiary and n-ary interpretative text at the output of the communicative space, which, in our opinion, preconditions the emergence of an essentially new text; moreover, such a text is transformed with the help of special programs of digital censorship and digital editing into a completely new text. In this regard, we introduce the concept of a digital quasi-text containing transformed network information with elements of sentimentality and toxicity.

- Keywords:** digital humanities, digital communication, “person’s portrait”, psychological profiling of young users, sentimentality, toxicity, digital inter- and quasi-text
- Acknowledgments:** The research was carried out with the support of the Russian Science Foundation (RSF), project No. 22-28-01050.
- For citation:** Potapova, R. K., Potapov, V. V. (2023). Sentiment Analysis of Digital Communication. *Vestnik of Moscow State Linguistic University. Humanities*, 4(872), 86–96. 10.52070/2542-2197_2023_4_872_86

INTRODUCTION

*Sentiment analysis*¹ (also known as emotion artificial intelligence or opinion mining) is the use of natural language processing, text analysis, computational linguistics (which is a whole scientific direction), and biometrics to systematically identify, extract, quantify, and study affective states and subjective information. Sentiment analysis in our case is widely applied to such digital materials as reviews and survey responses, online and social media.

Modern digital interpersonal communication has a mass nature and from this point of view there is a need to analyze the emotional state of Internet users with the involvement of various kinds of digital sentiment analysis programs. But first of all, the basis for such an analysis is to more thoroughly investigate the influence of Internet communication on the individual emotional profiling of digital Web users, which will be discussed in our article.

FEATURES OF INTERPERSONAL COMMUNICATION IN THE DIGITAL TECHNOLOGIES

In the process of converting a verbal signal, that is, a signal of a humanitarian profile into a digital code, the so-called “OSI-Model” (Open Systems Interconnection Model) is used all over the world, that is designed to transfer multi-level data and was developed in 1977 by the International Organization for Standardization (ISO). This model is multi-layered and includes seven level positions: from the level of application purpose to the level of information transfer in bits, including the levels of presentation, localization, transportation (transfer), delivery and security [Digital Humanities, 2017]. With regard to the humanities, the use of digital technologies is expedient when it comes to solving such problems as, for example, analyzing a large statistically significant text array, searching for language constructs of a certain type, etc. [Ibid]. As for the study of fine semantic nuances, allusions, the author’s stylistic originality when conveying the meaning of the text, etc., then in this case the task is more complex than the previously mentioned tasks. Since our task

is determined by identifying the features of human behavior in the digital age, correlating with the manifestation of these features in the act of digital communication, the emotional correlates of the information content in the communicative act as a whole come to the fore. Of particular importance are studies focusing on the subject-user of the Internet, who is in constant interaction not only with other Internet communicants, but also with the sign-symbolic codes of the virtual environment itself.

All of the above raised the following question: how new is the human emotional sphere in the “digital age”? How does it differ and does it differ from the experience of the entire previous era of communication? It is known that emotions have always been distinguished by the property of “infecting” those to whom they are addressed in appropriate situations and conditions: for example, in situations of escalation: from anxiety, concern, fear, intimidation to horror, panic, shock... How new is all this in the digital age?

The sentimental nature of certain kinds of stimuli is well known in psychology and psychiatry. It is *emotio*, and not *ratio*, that, first of all, pushes people to commit crimes, extraordinary actions, etc. At the same time, we observe that it is the scale of digital communication that contributes to the transformation of dialogue into anti-dialogue. This is also facilitated by large-scale virality, that is, the dissemination of the information content by the method of “viral infection”².

The modern digital environment in which a person is “placed” in our time is fundamentally different from all types of situational prerequisites under which human emotions developed and were observed, studied, classified and interpreted earlier. A person and his/her emotional reactions to the world around us were considered primarily as a result of biological, physiological and psychological processes [Panksepp 1988; Пэйн, Купер, 2008].

This network communication led to changes in the types of social interaction not limited by ethics, conventions, rules, plausibility, honesty and truth. The modern “digital personality” (we previously introduced the concept of “electronic personality” [Потапова, Потапов, 2017]) is functionally involved in constant iterations between one’s own “I”

¹ URL: <https://aclanthology.org/2021.eacl-main.142>

² URL: <http://community.sk.ru/news/reading/b/advisorblog/archive/2013/03/10/mechanizmyvarialnosti.aspx>

and the network environment. And the wider this space is, the more diverse the combination rules of emotional reactions is also. *Information processes* functioning in the digital environment radically change the **cognitive model of the world** of an individual, subordinating the set of individual emotional-modal reactions of this model formulated in the digital network to the generally accepted cognitive “standard”.

According to the cognitive-behavioral approach that currently prevails in modern ideas about dysfunctional emotions, emotional reactions are an interpretation of the psychosocial world [Пэйн, Купер, 2008]. A person under the conditions of digital communication, from our point of view, finds himself/herself to be a “part” of an integral digital organism, the rules of which make him/her function, constantly adapting to its requirements, suppressing his/her natural idiosyncratic beginning, “breaking” himself/herself in terms of emotional-modal states. Thus, the digital age has a “reformatting” effect on the personality, changing his/her mood, temperament and emotions. A significant role is played by the functioning of the “conflictogen”, which we consider as a consequence of endogenous and exogenous processes of personality formation¹. The idiosyncrasy of the digital personality is restructured, individuality disappears, and the opinion of the “digital monster” (the crowd) is formed. All emotional-modal individu-

¹ For more information, see: Потапова Р. К. О комбинаторно-конверсиональной природе конфликтогена // Язык в глобальном контексте: языковые контакты и языковые конфликты в современном мире: Сб. науч. трудов / отв. ред. В. В. Потапов, Е. А. Казак. М.: ИНИОН РАН, 2021. С. 5–16.

al differences are erased. Everything is subordinated to the digital Moloch. This gives rise to the effect of the predominance of negative emotional-modal states, neurosis, irritability, distress, anger, fear, hostility, aggression, anxiety, etc., which “pulls out” a person from the context of the classical epistolary style and turns him/her into the owner of a quasi-text (quasi-information), which has nothing to do with the primary original informing text [lat. quasi – as if, sort of].

DIGITAL COMMUNICATION STUDIES WITH EMOTIONAL-MODAL APPROACH

Modern digital communication science, in our opinion, violates the individual cognitive-motivational-relational model of human behavior in a network environment, on the one hand, making it one of the areas of digital humanities under research, and, on the other hand, offering the possibility to analyze the features of the transmission of emotional information using a dimensional (parametric) approach that includes factor-analytical methods for determining the minimum number of parameters that correlate with the largest number of emotional options. Thanks to this approach, three main categories of the study of emotions were identified: positivity – negativity, tension – relaxation, activation – deactivation (inhibition) [Потапова, Потапов, 2017]. For each specific emotion, key relational situations were developed, which, according to our observations, fully fit into the variability of network digital behavior of communicants (Table 1).

Table 1

SOME EXAMPLES OF A CAUSE AND EFFECT RELATIONSHIP BETWEEN A REAL STIMULUS AND AN EMOTIONAL RESPONSE

Anger	Response to humiliation, insult
Anxiety	Feelings of uncertainty or threat
Fright	Instantaneous, specific, all-encompassing physical danger
Guilt	Violation of moral principles
Sense of shame	Failure to achieve the ego-ideal
Sadness	Experiencing irretrievable loss
Envy	Feeling of being unfairly left out
Jealousy	Resentment for the loss of affection
Happiness	Achievement of the desired goal
Pride	Increasing your own ego-identity
Relief	Change for the better after some sad experience
Hope	Faith in the improvement of the situation
Love	Participation in affection
Gratitude	Appreciation
Sympathy	Willingness to be helpful

All of the above emotional-modal states within the problem under study are, on the one hand, the results of the communication process and, on the other hand, an emotional trigger for the start of a new round of emotional modification, that is, a *model is realized that is infinite, spiral-shaped and iterative*.

In the course of development, emotions are differentiated and form various types differing in their psychological characteristics and patterns of their course. Emotional (in the broadest sense) processes currently include affects, as well as emotions and feelings themselves [Психология мотивации и эмоций, 2002]. Emotional objects include, as a rule, a wide class of processes of internal regulation of human activity. They perform this function, reflecting the meaning they have and the situations that affect the subject, their significance for his / her life. Unlike affects, emotions themselves are long-term states. They are of a clearly expressed situational nature, i.e. express an evaluative, personal attitude to emerging or possible scenarios, to their effects and to their manifestation in these situations. More conditional and less generally accepted is the separation of *feelings* as a special subclass of emotional processes. The basis for such a separation is their clearly expressed objective nature, which results from a specific generalization of emotions. Social attitudes play a significant role in the formation and development of higher human feelings [Потапова, Потапов, 2017].

As for affects¹, "... in a person, affects are caused not only by factors affecting the maintenance of his/her physical existence. They can also arise in emerging *social relations*, for example, as a result of social assessments and sanctions. The repetition of situations that cause some negative affective state leads to the accumulation of affect, which can be discharged in violent uncontrollable affective behavior, an "affective explosion"" [Ibid, c. 77].

From our point of view, the study of emotions on the material of network communication should be based primarily on a comprehensive interdisciplinary approach, which is based on the behavioral psychology of an individual. For example, Karl Jaspers combines the consideration of feelings and emotional states in terms of psychological behavior [Jaspers, 1973], including a phenomenological classification according to the object of feeling, source, biological goal, intensity and duration of the process.

¹ According to Aristotle, an affect (lat. *afficere* – to influence, to strike) is a designation of all spiritual impulses that are accompanied by pleasure or suffering: attraction, anger, fear, courage, malice, joy, love, hatred, longing, envy and pity. Adhering to Plato's doctrine of the soul, the Stoics defined affects as unreasonable mental states that contribute to the destruction of natural impulses [Брокгауз. Философия: концепции, мыслители, понятия : пер. с нем. СПб.: Амфора, 2010, с. 35].

According to Reinhard Fieher, any kind of interpersonal communication can be represented using a number of models of emotional responses on the part of the addressee; that is, from the standpoint of modern research ideology, it is an emotional trigger for a further communicative reaction. R. Fiehler [Fiehler, 1990] identifies the following models of emotional responses of the addressee:

- physiological reactions (trembling, paleness);
- unvoiced non-verbal responses (facial expressions, gestures, proxemics);
- vocalized non-verbal responses (laughter, groans, affective sounds);
- verbal manifestations (choice of words, choice of topics, appeals, reproaches, etc.);
- verbal-emotional means of communication (reproaches, threats);
- verbalization of significant events and processes;
- description of the situational details of the experienced event;
- verbalization of experienced events and their details, etc.

Based on psychometric studies, some physiological correlates of emotional measurements have been found. It has been established that the relationship between positive and negative emotions is the weaker, the longer the period of evaluation of their subjects is [Watson, Tellegen, 1985]. This model takes into account the activation and deactivation of emotions realized in a spherical space. There are two poles in this spherical model: the pole of intense negative experience (activation) and the pole of weak negative experience (deactivation). A similar relationship is observed for positive emotions.

MODERN FRAME APPROACH TO THE PROBLEM OF DESCRIBING EMOTIONS

For the analysis of the emotional sphere in a digital network, the analysis of frames is of decisive importance, the purpose of which is to identify, describe and study stable semantic structures (frames), within which the information content of the analyzed material is realized.

It is usually assumed [Minsky, 1974] that:

- the primary initial frame systems are the frames of society, culture and nature;
- the number and types of frames depend on the formation of reality;
- frame systems are not set as rigid algorithms, as they are constantly in the process of formation;
- frames are keys that can switch our attention or perception from one level to another.

At the perceptual, mental and cognitive levels, there are 5 main frame keys (according to E. Goffman) [Goffman, 1986]:

- “fake”: fiction, through which a staged representation of the situation is realized [Вахштейн, 2011], which differs from reality (theater, cinema, mass media);
- “competitions”: switching the frame of the fight (struggle) to the safe sphere of the game (sense of risk and uncertainty);
- “ceremonial” as ritual actions that trigger the mechanism for assigning social roles and distributing appropriate powers;
- “technical alteration” or “reconfiguration”, with the help of which the real situation is represented by its images accompanied by clear background indications of their perception;
- “rethinking” as some key to understanding the motives of the players’ actions in situations where the image does not match reality (fraud and juggling with facts) [Сарна, 2017].

According to a number of German researchers in the field of psychology and the science of communication (communicativistics), the modern psychology of post-facts (that is, the facts stated in the messages and their reflections in the digital environment) is characterized by *sentimentality*; attention to the discussion of famous persons, figures, etc.; the main shift in the information content towards the most negative facts, events, etc. The most valuable are facts that do not differ from advertising (commercials), i. e. they should be catchy and attractive. The choice of algorithms should be consistent with the types of the information content and the person in question. These algorithms for presenting the information content about a person should reflect in advance *a priori* the relationship between this person and information related to him/her, which coincides with the initial opinion about this person [Die Psychologie des Postfaktischen, 2020].

Thus, for example, in M. Appel’s opinion [Appel, 2020], the picture looks gloomy. When exchanging opinions, instead of truth and plausibility, there are bullying, trolling, lies, cheating, fraud, etc. The author believes that in this regard, the aim to “stand everything on its ear” caused a lot of neologisms. These include primarily such words as *das Postfaktische, postfaktisch* (German): *post-truth* (English) (*post-facts, post-factual*) (messages). To denote the beginning of the **era of lies** for the information content, a new word was introduced: “post-factual/post-fact period (era)”, which was declared the “word of the year” by the Law Society of the German Language of Germany in 2016. The post-fact era covers the media period over the past 25 years and is associated with the spread of the Internet since the 1990s, as well as with the advent of

social media platforms such as Facebook, Instagram and Twitter since the late 2000s.

According to German researchers [Сарна, 2017], the Internet provides information in a form of access that has never existed before. Moreover, it allows the unhindered dissemination of information to persons who are neither journalists, nor content experts, etc. All this, along with the coverage of a large number of people receiving information, leads to a danger of reducing and changing the content and quality of the information itself. Thanks to digitalization, new group corporations have emerged, whose financial entrepreneurial interests have come into conflict with the reduction of false information.

A special place in the study of the media sphere is held by *digital humanities* including the use of digital methods for accumulating, transmitting and processing data in the field of the humanities: linguistics, sociology, literature studies, archeology, art criticism, history studies, historiography, textual criticism, etc. [Digital Humanities, 2017]. Due to the active use of digital technologies in the transmission of textual information, of particular importance is intertextual analysis (ITA) correlating with the strategy of interpreting network messages, which implies that the text interacting with other texts changes both in content and in form. ITA is considered from two points of view: the author’s and the reader’s ones. In semiology, for example, the concept of intertextuality is defined as one of the possible types of relationships that arise between texts (e. g., [Барт, 1994]).

The broadening exchange of information on the Internet has led to the fact that all the individual features of the person’s psyche, his/her social and antisocial behavioral habits, the level of intellectual development, psychopathological inclinations, etc. turned out to be the “property” of the macrosociety due to the freedom and unhindered transmission of the information content. Naturally, the multimodal polycode nature of information transmission in the digital age has become the main optimal channel including a verbal text, pictorial and artistic illustrativeness and supporting music serving to solve the main communicative task, that is, to influence the person’s psyche, change his/her cognitive-evaluative reactions to the world around and etc.

FEATURE OF “TOXICITY” IN INTERNET COMMUNICATION

The logical consequence of the functioning of such a large-scale process was the use of the term “toxicity”¹

¹ Ожегов С.И. Словарь русского языка. Изд. 17-е. М.: Русский язык, 1985; Современный толковый словарь русского языка / Гл. ред. С.А. Кузнецов. М.: Ридерз Дайджест, 2004.

(“harmful”, “harmfulness”) in relation to various types of network information: linguistic, visual, sound, locomotion, etc. In verbal network communication, a number of lexemes have appeared that serve to indicate the presence of “toxicity” facts, for example: bullying, trolling, hating, mobbing, stalking, menspreading, sexing, etc. The term “toxicity” itself is part of the semantic field “infectiousness”, “infect”, “contagious”, which correlates with the meanings of a figurative nature in this case: perceive, learn from someone, get carried away by something, carry an infection in oneself, make others imitate something, harm oneself from the contagion process, etc. A multi-vector approach to the analysis of various types of manifestations of “network toxicity” provides an interdisciplinary consideration of the phenomenon of “network toxicity”: a) the multi-code nature of linguistic means, which includes, in addition to verbal, other information transmission codes (for example, graphic, pictorial); b) genres covering various types of media communication (e.g., posts, chats, comments, memes, etc.); c) testing a scale to measure propensity for using network toxicity; d) psychological analysis of a personality prone to manifest network toxicity, including elements of psychopathology and psychopathy; e) provocative-evocative role of “network toxicity”.

What is meant by the term “network toxicity”? There are many answers to this question, the meaning of which is concentrated around the concept of the behavior of a communicant in a social network, misleading the addressee(s), preventing normal communication, containing elements of contradiction, as well as irony that should not be understood (recognized) by other users, including insults, mockery, threats of violence, etc. That is, including a pronounced emotive component [Rieger, Dippold, Appel, 2020]. Network toxicity is especially widespread among young people on global anonymous platforms, where *sexism* and *racism* are typical language patterns. A study of the psyche of individuals prone to clearly expressed network aggression and conflict potential shows that all personal characteristics of network behavior fit into the formula “The Big Five”. This model was developed to systematize psychological indicators that correlate with a person’s propensity for various types of provocative and evocative network behavior. Among the five main features that have an individual degree of manifestation in different personalities, the authors include neuroticism, extrovertism, propensity (openness) to gain experience, endurance and the threshold of conscientiousness. Of particular difficulty are combinations of the above personality traits in various proportions. Different ratios of the above features may indicate, for example, the predominance of psychopathy, sadism, narcissism

and Machiavellianism. The result of such combinatorics is the search for a “victim” in the network and the targeted manipulation of the addressee(s), which leads to provocative-evocative effects of a multi-scale format.

When referring to the verbal features of “network toxicity”, as a rule, the lexical and syntactic-semantic analysis of the material under study comes to the fore. In this regard, linguists have already gained quite sound experience. Programmers are actively involved together with linguists; for example, to solve this problem, a program approach is developed to automate the search for “traces” of semantic-lexical information. An original approach to solving the problem has been proposed that is based on the distribution of derivative units of Russian-language word formation, as well as on the method of grapheme substitution [Потанов, Маслова, 2021]. Thus, verbalics is a kind of a “surface” layer of network toxicity, including the verbal and communicative competence of communicants, which correlates with six functions of speech communication (according to R. Jakobson) [Jakobson, 1972]: expressive (verbally reflecting the emotiveness of the statement); conative (appellative-incentive); referential (communicative-cognitive-denotative); phatic (contact-establishing); metalinguistic (explaining the features of the language code used in the message); poetic (concentrating on the form of the message).

CONCLUSION

From the perspective of presupposition, that is, the “knowledge fund of the author of the message”, the linguistic vector of analysis acquires special significance when solving the problem, for example, of profiling a person communicating in the polycode environment of the Internet. Naturally, the list of vectors proposed in this message would be incomplete without the involvement of cognitive information that correlates with the picture of the world of Internet communicants, the features of mental processes within the activity model of communication, characterized by procedurality, continuity and contextuality. It is the cognitions that cover knowledge and thinking that are realized in each individual, determining the specifics of his/her behavior.

The study and description of the “*person’s portrait*” (“*profiling*”), whose behavior is characterized by toxicity, which is realized by various types of bullying for the sake of self-affirmation, based on various situations of deprivation, frustration, enmity and hatred, is within the competence of representatives of a number of scientific fields. Thus, the study of the large-scale phenomenon of communicative toxicity

in network communication requires an interdisciplinary approach, taking into account knowledge in the field of, for example, neurophysiology, psychology, psychiatry, psychopathology, cognitive science, linguistics, etc.

Among the main reasons for toxicity on the Web are the following: aggression, thirst for bullying the weak, need for a victim, sadism, masochism, self-affirmation, imitation, vanity, physical and mental disabilities, fashion, craving for fame at any cost, lack of socially-oriented education, etc.

In addition, the manifestation of toxicity typically includes the intrusion into personal space in terms of tabooed, indecent and offensive topics as compensation for one's own insolvency, also resulting from fame, the presence of a team of like-minded people and social significance; and use of "dummy profiles" (dummy post authors). Toxic posts are also characterized by the use of such terms as "hater" – a hating person, a volunteer (lack of one's own social and creative realization, a hidden thirst for recognition); stalking, stalkers – access to the real world; mobbing – colleagues "love" the one who has "shaken" their "swamp", etc.

Those who are characterized by demonstrativeness, self-centeredness, hysteroid mindset, like to be in the spotlight and suffer from its absence. In the presence of cyclothymia, a sharp change in mood occurs: from euphoria and aggression to apathy and depression, suspiciousness, excitability, susceptibility to various phobias, etc. Among representatives of toxism on the Internet, as a rule, are the "under-liked" (those who did not receive public admiration, fame) and the "under-banned" (those whose personal life is flat, uninteresting, monotonous).

Communication through picture(s) plays a special role [Stein, Sehic, Appel, 2020]. Programs based on the transfer of images, for example, Instagram, Snapchat, etc., in competition with text platforms (Facebook, Twitter), have long overtaken them in terms of the number of active users. The advantages of images (pictures) are undeniable, since in this case perception connects what is seen with the reaction. There is a possibility of manipulations, deceptions, etc. Some of the main research areas on the topic should be mentioned: *Bildkommunikation* (German) (i.e. *communication based on visual perception of images/pictures*), which is important for the study of meme information¹. For example, pictures, short texts, parodies, cartoons, etc., usually generate cognitive dissonance. If some event is preferential for a person, then the pro-

cess of his/her thinking "steers" imperceptibly through a series of systematic errors to the desired direction of decision-making, while making unconscious mistakes. In connection with cognitive dissonance, one usually speaks of the "self-deception" effect, which, as a rule, affects decision-making. Thus, digitalization in the field of the humanities (*Digital Humanities*) is considered as a modern technological basis for the process, thanks to which network formats of different scales form an information environment – a humanitarian information space, within which polymodal polycode communication of network users takes place [Stein, Sehic, Appel, 2020].

In this regard, the problem of a special study arises that suggests answers for the following questions: how new is the human emotional sphere in the digital age; what emotional triggers are included in network communication; what is the phenomenon of toxicity of modern means of transmitting polycode information: verbal, paraverbal, nonverbal and extraverbal (see the works of Rodmonga K. Potapova), the use of which in the digital environment has become gigantic and has made it possible to expand the boundaries of frame analysis of digital textual and discursive matter. In the presented concept, special attention is paid to modeling the correlation process, that is, the formation of the human cognitive sphere, taking into account the following factors: a) distorted reality, b) reality and virtuality with the primary role (base) of reality, c) virtuality and reality with the primary role of virtuality, and d) absolute virtuality. According to our concept, of particular importance is the development of a modern *multi-iterative model*, within which the features of the dynamics of the transformation of the *original digital text* into a *secondary digital intertext*, a *quasi-text* and further into an *n-ary interpretative text* are analyzed, which practically leads to the emergence of an *essentially new digital text*, which is further transformed to the final version after digital censorship and digital editing. As mentioned earlier, the result of this process is a significant change in the digital narrative, leading to the transformation of dialogics into anti-dialogics. For studies of this kind, it is necessary to take into account the types of frame analysis of the network polycode corpus, on the basis of which it is possible to establish ranked data that make it possible to determine and evaluate the relevant features of *sentimentality* in relation to the behavior and response to the stimulus of the "*digital personality*".

Particular attention should be paid to the results of an interdisciplinary study in the field of influence of digital content on the cognitive and

¹ See, e. g., Потапова Р. К., Потапов В. В. Интернет-меметика как эмоциогенная среда сетевой коммуникации // Известия Российской академии наук. Серия литературы и языка. 2022. Т. 81. № 2. С. 78–91.

neurophysiological parameters of the emotional state of Internet users (*global digital network*). At the same time, a special role of coping (counteraction) in the interaction of communicants in the digital environment is noted, as well as in the study of cognitive-behavioral emotional functions in relation to digital communication.

On the basis of our research, a model of chromatic subtypes (modulations) of emotional states realized in the communication process was developed, and the results of the analysis of the effect of informational resonance are presented in relation to emotionally marked digital narratives containing emotional-modal transitions from one emotional-modal state to another. The broadening exchange of information on the Internet has led to the fact that particular features of the individual psyche of a person, his/her social and antisocial behavioral markers, the level of intellectual development, psychopathological inclinations, etc. turned out to be the property of the macrosociety due to the freedom and unhindered transmission of the information content. Naturally, the multimodal polycode nature of information transmission in the digital age has become the main favorable channel, including textual verbalics, visual and artistic illustrativeness of extraverbalism, supporting music, etc. that serve to solve the main communicative task: *to influence the person's psyche, change his/her cognitive evaluative reactions to the world around, etc.* As mentioned earlier, the logical consequence of the functioning of such a large-scale process was the use of the term "toxicity" ("something that is harmful", "harmfulness") in relation to various types of network information: linguistic, visual, sound, locomotion, etc. In verbal network communication science, a number of lexemes appear that are borrowed from the English language and serve to indicate the presence of toxicity: e. g., hating, mobbing, stalking, bullying, trolling, manspreading, sexing, etc.

In the study of toxicity, from our point of view, the *multi-vector approach* to the analysis of various types of manifestations of network toxicity seems to be optimal, since it provides an interdisciplinary consideration of this phenomenon. Among these vectors are: polycode language means, diverse genres covering various types of media communication (e. g., posts, chats, comments, memes, etc.), profiling research direction, including data from psychopathology, sociology, types of addiction, verbalics of "network toxicity" taking into account the provocative and evocative elements of affecting Internet users [Потанов, Маслова, 2021]. From the perspective of presupposition, that is, the "knowledge fund of the author of the message", the linguistic vector of analysis acquires special significance when solving the problem of portraying a

person communicating in the polycode environment of the Internet. Naturally, the list of vectors proposed in this message would be incomplete without the involvement of the cognitive function that correlates with the picture of the world of Internet communicants, the features of mental processes within the activity model of communication, characterized by procedurality, continuity and contextuality. It is the cognitions that cover knowledge and thinking of the communicants that are realized in each individual, determining the specifics of his/her behavior.

When studying the *"person's portrait" (profiling)* in network communication, all of the above analytical approaches focus on the "concept" as the basis of the language picture of the world that determines the individual characteristics of the studied profiling, the "network behavior" of which is characterized by toxicity, which is realized by various types of extremism, harassment, hatred, boycott, humiliation, threats, etc. for the sake of their own self-affirmation in relation to various situations of enmity, hatred, deprivation, frustration. From this point of view, network toxicity can be considered in relation to Internet communicators as a type of *subject addiction* (dependence), within which the activity of individuals in the state of this dependence is realized in a communicative network environment. As mentioned earlier, the study of the phenomenon of network communicative toxicity requires a *multi-vector* approach, taking into account data from cognitive science, cognitive linguistics, neurophysiology, psychology, psychiatry, and sociology. In addition, we propose to distinguish *three registers in the study of "linguistic toxicity"*, taking into account the number of addressees and addressers: register 1 – very individual; register 2 – medium, covering a limited number of a particular social group; and register 3 characterizing the scale of communication participants (up to the city, countries and a number of state associations). Considering various registers of toxicity, it is possible to determine the degree of demonstrativeness and egocentricity of participants in toxic communication, as well as the presence of various types of phobias and psychopathologies that characterize addictive behaviors characteristic of various types of communication. Therefore, the phenomenon of "network toxicity" can be characterized as a marker of an existing network addiction, which is characteristic of a person functioning in the polycode environment of the Internet.

Thus, the "toxicity of digital behavior" of a person is a special type of behavior, or rather one of the types of behavioral addiction. It is thanks to information toxicity that such digital artifacts as dehumanization, mythologizing, changes of narrative paradigms, mosaic factography, cynicism, etc. flourish. The concept

of epistolary dialogics is transformed into the concept of epistolary anti-dialogics. The development scheme itself: *text*→*intertext*→*quasi-text* becomes universal, and the model becomes iterative. Naturally, the transition from some emotional and emotional-modal states is not discrete, but, as a rule, continuant, which can be compared, in our opinion, with the chromatic scale in music (by semitones), where transitions from one emotional and emotional-modal states to another are often elusive, but all the more dangerous for the final effect on the addressee(s) (e. g., from surprise to irritation, anger, shock, etc.; from concern, anxiety → to fear, horror, panic, etc.). E. g., **any kind of frustration and deprivation gives rise to an iteration of emotiogenic layers, radically changing the behavior of the person.** Consequently, with the digital version of communication, the factors that affect the person's psyche are replaced: it is not the external environment as such that influences, but the repeatedly reformatted stimulus essence expressed in mono- and polycode modes: text, image, various musical and acoustic noises, etc. The cognitive sphere of the person is no longer formed under the influence of reality, but under the influence of repeatedly reformatted digital virtuality perceived by users as an analogue of reality. And in this process, according to the "stimulus-response" model, no one thinks about the fact that digitalization in the field of humanities is a purely technical process of digital coding and digital decoding of humanitarian information, which forms a certain specific environment including semiotic, semantic, *sentimental*, valeological, psychophysiological, cognitive and other features of information receiving, storing, understanding and transmitting. And it is natural that the digital processing of the subtle matter of human mental operations cannot fully ensure the process of its transformation. In this case, *entropy*, similarities and differences between the source and recipient, models of understanding, influence of the code variety, etc. play a special role [Потанова, Потанов, 2017].

The information flow increases in proportion to the increase in entropy. It only makes sense that the natural power of the individual brain does not have time to process all the information that comes with the help of digital means, which results in: *partial (incomplete) understanding of information, misunderstanding of information, distorted subjective understanding of information, fundamentally misconception of information*, etc. At the same time, no one thinks that digitalization is a special technological basis of the process, thanks to which, as already mentioned, it is possible to translate any text in the broadest sense of the word into a compact record that is easily transmitted and associated with other records of the same format.

It is this transition that makes it possible to create multimedia networks, collaboration and interactive communication. Here, all and everything is edited, modified, adjusted to a certain standard, etc., that is, is changed in the image and likeness of the "customer" who is interested in putting pressure on the psyche of users. Moreover, in studying the role of cognitive-behavioral emotional functions in relation to network communication, a special role can be played by such a type of behavior as coping designed to develop norms for the behavior of communicants in the global digital network [Пэйн, Купер, 2008, с. 94–95]. But the development of this field of research in relation to the Internet is hardly realistic, given the emotiogenic diversity of facts of both a socially large-scale nature and in an ethno-cultural sense. It is hardly realistic to demand from network users (according to coping) the tactics of restraining emotions, their regulation or suppression, since in this case the social position and status of communicants can affect the digital emotional background of communication in general.

It is metaphoricity and conventionality that form a deep *code line* between the digit and the word, the system and the absence of a single system, unambiguity and variability. Naturally, it is this difference that significantly complicates the use of digital technologies for the construction of semantic complexes-texts that carry the given information and destroy redundant information, which becomes the subject of variation, manipulation and emotive tools.

It is quite natural that the systemically variable environment of the functioning of the word cannot be completely homothetic to the units of the digital environment, and here a rich capability of varying the units of both codes appears. The digital network creates its own environment, within which the cognitive and emotive features of the personality are formed, which becomes the subject of manipulation. Emotional-modal network toxicity becomes a socio-cultural marker of network communicants that forms them and uses them for provocative and evocative purposes. It is with the help of digital software that the humanistic essence of the word is "washed out" of non-digital content, its correlation with the semantic depth, metaphoricity and subtext formed by the entire cultural environment of the human mind, talent, individuality and narrative. The specificity of translation from one language to another is also not taken into account, as well as polysemy, context dependence and metaphorical nature of languages. It is in this way that the text is "polished" programmatically, thus acquiring new meanings, "sub- and over-meanings". It is multilingual recoding that also makes it possible to influence the psycho-emotional state of participants in the communication process.

Sensimentality of an invisible scale appeared; and the foundations of the relationship between ratio and emotio disappeared in spite the fact that they had been formed over centuries and millennia based on the metaphorical nature of the language. Everyone and everything rushed

to practice in abuse, insults, lies, finding pleasure in bullying, trolling, sexing, menspreading, etc. New linguo-stylistic registers of social network discourse have emerged that are realized on the basis of frustration, deprivation and addiction [Potapova, 2015].

СПИСОК ИСТОЧНИКОВ

1. Digital Humanities: Eine Einführung / F. Jannidis, H. Kohle, M. Rehbein (Hg.). Stuttgart: J.B. Metzler Verlag, 2017.
2. Panksepp J. Posterior pituitary hormones and separation distress in chicks // *Neuroscience Abstracts*. 1988. 14. P. 287.
3. Пэйн Р. Л., Купер К. Л. Эмоции и работа. Теории исследования и методы применения: пер. с англ. Харьков: Гуманитарный центр, 2008.
4. Потапова Р. К., Потапов В. В. Основы многоаспектного исследования «электронной личности» по голосу и речи в информационно-коммуникационной среде Интернета // *Человек: Образ и сущность*. ИНИОН РАН. 2017. № 1–2. С. 87–111.
5. Психология мотивации и эмоций / под ред. Ю. Б. Гиппенрейтер, М. В. Фаликман. М.: ЧеРо; Московский психолого-социальный институт, 2002.
6. Jaspers K. *Allgemeine Psychopathologie*. 8., korr. Aufl. Springer, 1973.
7. Fiehler R. *Kommunikation und Emotion*. Berlin, New York: Walter de Gruyter, 1990.
8. Watson D., Tellegen A. Toward a consensual structure of mood // *Psychological Bulletin*. 1985. Vol. 98. P. 219–235.
9. Minsky M. *A framework for representation knowledge*. Cambridge: Massachusetts Institute of Technology, 1974.
10. Goffman E. *Frame analysis: an essay on the organization of experience*. Boston (Mass.): Northeastern University Press, 1986.
11. Вахштейн В. С. Социология повседневности и теория фреймов. СПб.: Изд-во Европейского университета, 2011.
12. Сарна А. Интертекстуальный анализ // *Новые медиа: социальная теория и методология исследований* / отв. ред. О. В. Сергеева, О. В. Терещенко. СПб.: Алетейя, 2017. С. 87–89.
13. *Die Psychologie des Postfaktischen: Über Fake News, „Lügenpresse“, Clickbait & Co.* Berlin; Heidelberg: Springer Verlag, 2020.
14. Appel M. *Die Psychologie des Postfaktischen-Einleitung und Überblick* // *Die Psychologie des Postfaktischen: Über Fake News, „Lügenpresse“, Clickbait & Co.* Berlin; Heidelberg: Springer Verlag, 2020. S. 1–7.
15. Барт Р. *Избранные работы. Семиотика. Поэтика* / Пер. с фр. М.: Прогресс, 1994.
16. Rieger D., Dippold J., Appel M. Trolle gibt es nicht nur in Märchen – das Phänomen Trolling im Internet // *Die Psychologie des Postfaktischen: Über Fake News, „Lügenpresse“, Clickbait & Co.* Berlin; Heidelberg: Springer Verlag, 2020. S. 45–58.
17. Потапов В. В., Маслова Н. Е. О структурном моделировании провокационно-эвокационных словоформ русскоязычного сегмента Интернета // *Язык в глобальном контексте: языковые контакты и языковые конфликты в современном мире: Сб. науч. трудов* / Отв. ред. В. В. Потапов, Е. А. Казак. М.: ИНИОН РАН, 2021. С. 50–61.
18. Jakobson R. Verbal communication // *Scientific American*. 1972. Vol. 227. № 3. P. 73–80.
19. Stein J.-Ph., Sehic S., Appel M. Machtvolle Bilder und Bildmanipulationen // *Die Psychologie des Postfaktischen: Über Fake News, „Lügenpresse“, Clickbait & Co.* Berlin; Heidelberg: Springer Verlag, 2020. S. 177–182.
20. Potapova R. From Deprivation to aggression: verbal and non-verbal social network communication // *International Conference “Global Science and Innovation”*. USA, Chicago, November 18–19th, 2015. P. 129–137.

REFERENCES

1. Jannidis, F., Kohle, H., Rehbein, M. (2017). (Hg.). *Digital Humanities. Eine Einführung*. Stuttgart, J.B. Metzler Verlag.
2. Panksepp, J. (1988) Posterior pituitary hormones and separation distress in chicks. *Neuroscience Abstracts*. No. 14. P. 287.
3. Payne, R. L., Cooper, C. (2008). *Emotions and work. Research theories and methods of application: transl. from English*. Kharkov: Humanitarian Center Publ. (In Russ.)
4. Potapova, R. K., Potapov, V. V. (2017). Fundamentals of the multi-versatile voice and speech research of the «electronic personality» on the information and communication Internet medium. *Human Being: Image and Essence*. Institute of Scientific Information for Social Sciences of the Russian Academy of Sciences. No. 1–2. P. 87–111. (In Russ.)
5. Gippenreyter, Ju. B., Falikman, M. V. (eds.). (2002). *Psikhologija motivacii i emocij = Psychology of motivation and emotions*. Moscow: CheRo Publ., Moscow Psychological and Social Institute Publ. (In Russ.)
6. Jaspers, K. (1973). *Allgemeine Psychopathologie*. 8., korr. Aufl. Springer.
7. Fiehler, R. (1990). *Kommunikation und Emotion*. Berlin; New York: Walter de Gruyter.

8. Watson, D., Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin*. No. 98. P. 219–235.
9. Minsky, M. (1974). A framework for representation knowledge. Cambridge, Massachusetts Institute of Technology.
10. Goffman, E. (1986). *Frame analysis: an essay on the organization of experience*. Boston (Mass.): Northeastern University Press.
11. Vahshtejn, V. S. (2011). *Sociologija povsednevnosti i teorija freymov = Sociology of everyday life and the theory of frames*. St. Petersburg: European University Publ. (In Russ.)
12. Sarna, A. (2017). *Intertekstualnyj analiz = Intertextual analysis*. New media: social theory and research methodology (pp. 87–89), ed. by O. V. Sergeeva, O. V. Tereshchenko. St. Petersburg: Aletejja Publ. (In Russ.)
13. *Die Psychologie des Postfaktischen* (2020): Über Fake News, „Lügenpresse“, Clickbait & Co. Berlin; Heidelberg: Springer.
14. Appel, M. (2020). *Die Psychologie des Postfaktischen-Einleitung und Überblick*. In *Die Psychologie des Postfaktischen: Über Fake News, „Lügenpresse“* (pp. 1–7). Berlin; Heidelberg: Springer.
15. Bart, R. (1994). *Izbrannyye raboty. Semiotika. Poetika = Selected Works. Semiotics. Poetics: Transl. from French*. Moscow: Progress. (In Russ.)
16. Rieger, D., Dippold, J., Appel, M. (2020). *Trolle gibt es nicht nur in Märchen – das Phänomen Trolling im Internet*. In *Die Psychologie des Postfaktischen: Über Fake News, „Lügenpresse“* (pp. 45–58). Berlin; Heidelberg, Springer.
17. Potapov, V. V., Maslova, N. Je. (2021). *O strukturnom modelirovanii provokacionno-evokacionnyh slovoform russkojazychnogo segmenta Interneta = On Structural Modeling of Provocative-Evocative Word Forms in the Russian-Speaking Segment of the Internet*. In Potapov, V. V., Kazak, E. A. (eds.), *Language in a global context: language contacts and language conflicts in the modern world* (pp. 50–61). Moscow: Institute of Scientific Information for Social Sciences of the Russian Academy of Sciences Publ. (In Russ.)
18. Jakobson, R. (1972). Verbal communication. *Scientific American*, 227(3), 73–80.
19. Stein, J.-Ph., Sehic, S., Appel, M. (2020). *Machtvolle Bilder und Bildmanipulationen*. In *Die Psychologie des Postfaktischen: Über Fake News, „Lügenpresse“* (pp. 177–182). Berlin; Heidelberg: Springer.
20. Potapova, R. (2015). *From Deprivation to aggression: verbal and non-verbal social network communication*. In *Global Science and Innovation* (pp. 129–137): International Conference. Chicago, November 18th–19th.

ИНФОРМАЦИЯ ОБ АВТОРАХ

Потапова Родмонга Кондратьевна

доктор филологических наук, профессор
действительный член Международной академии информатизации
директор Института прикладной и математической лингвистики
Московского государственного лингвистического университета

Потапов Всеволод Викторович

доктор филологических наук
старший научный сотрудник Учебно-научного компьютерного центра
Филологического факультета Московского государственного университета им. М. В. Ломоносова

INFORMATION ABOUT THE AUTHORS

Potapova Rodmonga Kondratyevna

Doctor of Philology (Dr. habil.), Professor
Full Member of the International Informatization Academy
Director of Institute of Applied and Mathematical Linguistics of Moscow State Linguistic University

Potapov Vsevolod Viktorovich

Doctor of Philology (Dr. habil.), Senior Researcher of the Centre of New Technologies for Humanities
Philological Faculty, Lomonosov Moscow State University

Статья поступила в редакцию	28.12.2022	The article was submitted
одобрена после рецензирования	16.02.2023	approved after reviewing
принята к публикации	01.03.2023	accepted for publication