

ELECTRONIC CREOLIZED POPULAR SCIENCE TEXT: INTERACTION OF VERBAL AND NONVERBAL COMPONENTS

TEXTO DE CIÊNCIA POPULAR CRIOLIZADA ELETRÔNICA: INTERAÇÃO DE COMPONENTES VERBAIS E NÃO-VERBAIS

TEXTO ELECTRÓNICO DE DIVULGACIÓN CIENTÍFICA CREOLIZADO: INTERACCIÓN DE LOS COMPONENTES VERBALES Y NO VERBALES

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ABSTRACT: The article is devoted to the examination of the mechanism of interaction of the verbal and nonverbal sign systems in popular science texts. The study reveals that the interaction of the verbal and nonverbal components of a popular science text is aimed at conveying information, promotes the reader's interest in this information, forms a convincing image of the discovery, research, or news from the world of science, and helps the reader to retain information in their mind for a longer period of time. The specificity of the comparability of the verbal and nonverbal components of the text is established at the content, content-linguistic, and content-compositional levels. The compositional-spatial elements of a popular science text are characterized and their functions are identified as drawing attention to significant events, informing, and forming an assessment. The study demonstrates that the coloristic component of a popular science text also functions as its semantic component.

KEYWORDS: Popular science text. Electronic text. Creolized text. Verbal component. Nonverbal component.

RESUMO: O artigo se dedica ao exame do mecanismo de interação dos sistemas de signos verbais e não verbais em textos de divulgação científica. O estudo revela que a interação dos componentes verbais e não verbais de um texto de divulgação científica visa transmitir informações, promover o interesse do leitor por essas informações, formar uma imagem convincente da descoberta, pesquisa ou notícia do mundo da ciência e ajuda o leitor a reter informações em sua mente por um longo período de tempo. A especificidade da comparabilidade dos componentes verbais e não verbais do texto é estabelecida nos níveis de conteúdo, conteúdo-linguístico e conteúdo-composicional. Caracterizam-se os elementos composicionais-espaciais de um texto de divulgação científica e identificam-se suas funções como chamar a atenção para eventos significativos, informar e formar uma avaliação. O estudo demonstra que o componente colorístico de um texto de divulgação científica também funciona como seu componente semântico.

PALAVRAS-CHAVE: Texto de ciência popular. Texto eletrônico. Texto crioulizado. Componente verbal. Componente não verbal.

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RESUMEN: *El artículo está dedicado al examen del mecanismo de interacción de los sistemas de signos verbales y no verbales en los textos de divulgación científica. El estudio revela que la interacción de los componentes verbales y no verbales de un texto de divulgación científica tiene como objetivo transmitir información, promover el interés del lector por esta información, formar una imagen convincente del descubrimiento, investigación o noticia del mundo de la ciencia, y ayuda al lector a retener la información en su mente por un período de tiempo más largo. La especificidad de la comparabilidad de los componentes verbales y no verbales del texto se establece en los niveles de contenido, contenido-lingüístico y contenido-composición. Se caracterizan los elementos composicionales-espaciales de un texto de divulgación científica y se identifican sus funciones como llamar la atención sobre eventos significativos, informar y formar una evaluación. El estudio demuestra que el componente colorístico de un texto de divulgación científica también funciona como su componente semántico.*

PALABRAS CLAVE: *Texto de divulgación científica. Texto electrónico. Texto criollo. Componente verbal. Componente no verbal.*

Introduction

The relevance of the current study is determined by the great interest of comparative researchers both to the study of creolized texts (their structure, semantics, and pragmatics) and the analysis of the linguistic and extralinguistic characteristics of such texts, as well as to the great topicality and insufficient study of the linguistic material belonging to the sphere of online communication.

It needs to be noted that the material under study, creolized texts, have been repeatedly subjected to research Anisimova (2003), Valgina (2003), Kamenskaia (1996), Poimanova (1997), Sorokin and Tarasov (1990), Berezin (2003). These studies are primarily aimed at exploring the structure and the specifics of the classification and construction of meanings in such texts. In the meantime, the principle of operation of electronic creolized popular science texts remains understudied.

Research of the functioning of verbal texts within the framework of communication processes indicates that although the natural language is the most critical and universal means of communication, it is not a natural one. Studies suggest that verbal signs serve their communicative function best specifically in interaction with nonverbal signs, the so-called means of “visual information” (photos, drawings, fonts, colors, video files, etc.).

The advent and active development of modern means of transmitting information, as well as the formation of network thinking require authors to present material in unusual forms. One version of the answer to the demand of modern non-specialist readers’ interest in science and technology is the increased share of creolized texts, both electronic and printed. Texts with

verbal (inscription, caption, title, main text, etc.) and nonverbal (illustration, diagram, table, graph, font, color, video sequence, audio sequence, etc.) components are actively used in popular science periodicals and issues with the “science” section, both printed and electronic, since the interaction of these components allows the reader to “read” the author’s intention as precisely as possible, though the intention itself may be expressed implicitly.

Creolized texts correspond to the desire to visualize information, increase the effectiveness of the impact of the text on the reader audience through double coding and compact presentation of the material present in mass communication, which generates the rise in interest in creolized texts. “Creolized text can be understood as a text with a message that is presented through two components, the printed and the visual” (IVANOVA, 2019).

A creolized text is defined as a complex textual formation in which the verbal and nonverbal elements create a single visual, structural, semantic, and functional whole, which is intended to affect the addressee comprehensively. Visual components in combination with the verbal ones produce a considerable influence on the interpretation of the text (TSYGANOVA, 2019).

“Visualization significantly simplifies the perception of the text, focuses the reader’s attention on especially important information, gives an opportunity to get distracted from the main body of text for a moment; increases the addressee’s interest in reading the entire text” (LEKOVA; MOLCHANOVA, 2018).

Note that “Creolized text [...] is a special linguo-visual phenomenon when the verbal and nonverbal components act as a single whole, which provides a comprehensive impact on the audience” (MELNIKOV; KATSITADZE, 2019). Supplementation of the verbal component with the nonverbal “may be meant to have an intended effect on the addressee different from that of the verbal text” (VASHUNINA; ILINA, 2020). In addition, “Internet text quite often has in its structure a visual or an audio component, therefore, this type of text can be considered creolized” (LEVCHENKO; IZGARSHEVA, 2018).

Herein, it is necessary to note another important feature of electronic creolized texts: the Internet provides an opportunity for instant notification, “which is why, hypothetically, any ‘image’, any statement or video, which have lately been experiencing an active transformation in terms of visualization (creolization), can suddenly ‘blow up’ on the Internet” (EROFEEV, 2019).

One of the top-priority problems in reading popular science texts is that a non-specialist reader often has a difficult time understanding the main idea of the text. Of great assistance in this regard can be the visualization of the researchers, the subjects of their research, the

phenomena, animals, archaeological finds, and other things serving as the subject of the narration. When such a text is read, there is no automatic comprehension of new information, but an elaboration of the essence of the presented problem and its evaluation.

Admittedly, incorporation of the nonverbal component evokes the reader's interest, activates (involuntarily) their attention, while reducing the effort spent on reading the text, and contributes to the formation of a sensual image of the problem presented in the text.

In accordance with the aforementioned distinctive features of creolized texts, their key characteristics are defined in the present study as follows:

- the verbal (linguistic/speech) component;
- the nonverbal component;
- simultaneous perception of the verbal and nonverbal components.

A creolized popular science text is an efficient way to arouse the reader's interest in news from the world of science and present information on recent discoveries and studies. Creolized texts have the ability to combine high informativity and maximum simplicity of presentation, thereby conveying information quickly and efficiently. Therefore, creolized texts are often found in popular science periodicals (both electronic and printed), as well as in the issues that have the "science" section. Stylistic characteristics of a popular science text define the significance of each nonverbal element (font, color, photos of researchers, subjects of the study, etc.).

Methods

The study analyzes the interaction of the verbal and nonverbal components of popular science texts. The object under study is authentic German-language popular science texts published in the electronic versions of the journals "Bild der Wissenschaft", "ScienceBlogs", "GEO", and "Focus".

The nonverbal components of the texts are used in the study as markers of the key points in narration, which use personal experience and knowledge while stimulating the emergence of new associative links and activating the existing ones. As a result, a nonverbal element is attributed a certain meaning, which forms within the context as symbolic. Operating with the nonverbal component at their own discretion, the author organizes the content of the text. Images (of people, animals, birds, plants, planets, maps, archeological and paleontological finds, etc.) function as an integral part of the information intended for a reader with little to no knowledge of the problem, news, discovery, or research that the text deals with.

Results

Nonverbal units employed in the text reinforce its dialogical nature, expand its borders, offer “new opportunities for the addressee to interpret and decode the message” (DENISOVA, 2019). An indicative example of such dialogism is that the distinction between face-to-face and distance communication has been almost obliterated at this stage of development (UKHOV *et al.*, 2021; KURBAKOVA *et al.*, 2020; SKRYLNIKOVA *et al.*, 2020; KRIVOVA *et al.*, 2021).

Each detail added in by the author of a popular science text can lead to an interweaving of meanings and convey the author’s message (BORISOVA, 2018). Adding nonverbal material makes it possible to subtly correct the reader’s perception of the verbal text for certain purposes (STEIN *et al.*, 2020). In other words, familiarization with the nonverbal presupposes attention to the context in which it is incorporated. This goal is served, for example, by a photograph of a drone whose landing principle was inspired by observations of birds (VIEWEG, 2021). The photo precedes the news about the invention and draws attention to the content of the text. The color of the photo is natural – the reader gets an idea of the color of each external element of the aircraft. In addition, based on the photo, one can judge the size of the components of the machine relative to each other, as well as the overall size of the drone (its dimensions are such that it can land on a tree branch like a bird). The same purpose is served by the video file included in the text: it draws the reader’s attention both to the video sequence and to the content of the text. The video sequence includes a visual representation of how birds use claws when landing and how this principle was used to create a drone with “claws,” as well as a commentary by the researchers. At the same time, the reader can “pause” the video or watch it any number of times at any moment, and therefore pay more attention to it and show more interest in the content of the text. Furthermore, “illustration, thanks to the effect of double coding of information, makes it easier to perceive” (VASHUNINA *et al.*, 2019). On the one hand, the author strives to increase the degree of perception of new information by means of “double coding”, verbal and visual, while, on the other hand, “enlivening” the information, making it more attractive.

At the same time, the nonverbal component, firstly, does not duplicate the verbal component of the text completely and, secondly, adds in new information by means of presenting to the reader the real color, shape, size, and other characteristics of the examined phenomenon (the object if the study, a plant, animal, etc.). Visual and verbal semiotic sequences often overlap and complement each other, and their creative combination gives the author an

opportunity to create an original, interesting, and memorable image (RUSHENTSEVA, 2019). Thus, the text about tangerines (HOFFMANN, 2021) is preceded by a photo of peeled and unpeeled tangerines with a caption that can be considered an explanation of why the author was interested in this topic: “Die weißen Fäden an der Innenseite der Schale von Mandarinen und Orangen lösen bei so manchem Ekel aus” (“Some people are repulsed by the white fibers on tangerines and oranges”). The author then explains that the mesocarp contains a lot of vitamin C and flavonoids, which support the immune system, and also induces a feeling of satiety. This is what the “white fibers” on seemingly ordinary tangerines are: they are not as simple and familiar as the reader may think at first glance. With the help of new information, the already familiar fruit appears as something new to us, an original image of it is created.

The above suggests that, with respect to the change of perception as a result of the use of the nonverbal component, it needs to be pointed out that this component embodies selective “duplication” of the information already presented in the verbal form and its supplementation with additional visual information. This characteristic feature of the nonverbal component is not noticed by the reader – they do not feel that “a transformation has occurred and believe that the object of their perception is the content of the verbal text [...] this allows regarding the creolization of a verbal text as a way of changing its perception”.

Conclusion

The main objective of the author of an electronic creolized popular science text is to provide the non-specialist reader with optimum conditions to understand the content of the text. Considering the nature (popular science) and purpose (information) of such a text, the author can choose the employed instruments and their combination in creating the text. Within a creolized text, the combination and interaction of the verbal and nonverbal means of information transmission are arranged. In their interaction, these elements ensure the unity and coherence of the text, its communicative effect. That is why a creolized text can be considered a complex text formation, in which the verbal and nonverbal components form one visual, structural, semantic, and functional whole aimed at a complex impact on the reader.

From a linguistic point of view, an electronic popular science electronic text is an interesting material to study because its content can not only provide information but also act as a tool to influence the reader.

A universal textual feature of an electronic popular science text is the presence of a nonverbal element in its structure. Although the general characteristics of a popular science text

rely on the verbal component, they cannot be considered apart from the nonverbal component as it would greatly complicate the process of reading and perceiving the text, reducing its attractiveness and readership interest.

At present, there are no exhaustive studies of the specifics of electronic creolized popular science texts, especially their nonverbal component and the features associated with their publication on the global information network of the Internet. Although this type of text finds its place in the general theory of text, it requires a more detailed study.

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How to reference this article

KHRISTOFOROVA, N. Electronic creolized popular science text: Interaction of verbal and nonverbal components. **Rev. EntreLinguas**, Araraquara, v. 8, n. esp. 2, e022065, 2022. e-ISSN: 2447-3529. DOI: <https://doi.org/10.29051/el.v8iesp.2.17322>

Submitted: 06/05/2022

Required revisions: 21/06/2022

Approved: 11/09/2022

Published: 10/11/2022

Processing and publication by the Editora Ibero-Americana de Educação.
Correction, formatting, standardization and translation.

