Scientific Divulgation and Digital Utterances / *A divulgação científica e o enunciado digital*

*Flávia Silvia Machado**

ABSTRACT

Under the perspective of the Bakhtin Circle's theory, this paper aims to study a few specifications, as well as aspects that constitute the digital scientific divulgation (DSD) utterances. Besides verbal and verbo-visual aspects, which characterize scientific divulgation utterances in several print genres, it is important to consider that our object of study is also composed by/in the complexity of the digital environment. We intend to present a reflection upon hypertextual dialogic relations, conclusibility and utterance alternation, and finally the conditions of production and reception in DSD utterances.

KEYWORDS: Scientific Divulgation; Digital Utterance; Dialogic Relations; Hypertextuality

RESUMO

Sob a perspectiva da teoria de Bakhtin e seu Círculo, este artigo busca compreender algumas especificidades e fatores constitutivos do enunciado digital de divulgação científica (DCD). Além de aspectos verbais e verbo-visuais, característicos dos enunciados de divulgação científica nos mais variados gêneros discursivos impressos, faz-se necessário levar em conta que nosso objeto de análise é também formado pela/na complexidade do meio digital. Pretendemos refletir sobre as relações dialógicas hipertextuais, a conclusibilidade e alternância do enunciado e, por fim, as condições de produção e recepção do enunciado de DCD.

PALAVRAS-CHAVE: Divulgação científica; Enunciado digital; Relações dialógicas; Hipertextualidade

---

* Université de Poitiers - Poitiers, France; machado_f@ymail.com

Introduction

The following paper aims at presenting a study of the digital scientific divulgation utterance (henceforth, DSD), considering its very complex constitution. This means that we must regard the two inner dimensions in which our object of analysis is materialized: scientific divulgation and the digital environment.

In the first dimension, there is an utterance that, according to Grillo (2013), is produced by a dialogical relation between the scientific sphere and other superior spheres of the quotidian ideology – in our case, journalism. The author frames the notion of scientific divulgation within the dialogical discourse analysis (BRAIT, 2006)[1] elaborated by Bakhtin and his Circle:

> From the theoretical Bakhtinian perspective, we interpret scientific divulgation as a modality of dialogical relation that promotes an organic living bond between science, regarded as a constituted ideological sphere, and the superior extracts of the quotidian ideology, which operate a living critical assessment of science products (GRILLO, 2013, pp.79-80).[2]

Conceiving the scientific divulgation as a modality of dialogical relation between utterances deviates from the hypothesis that it might be a specific discourse genre, such as Zamboni (2001) has assumed before. In fact, utterances of scientific divulgation are established within the regularities of different kinds of genres, such as articles, reports, and interviews in the written press and television, among others, and have the scientific sphere as a common denominator.

> Scientific divulgation is specified by the exteriorization of science and technology out of its own sphere of production, with the purpose of creating a scientific culture on its receiver; that is, its defining common feature is what we call exteriorization of science in the instances of circulation and reception. Therefore, it is about neither a

---

[1] In the article Análise e teoria do discurso [Analysis and Theory of Discourse], Brait (2006) refers to the Bakhtinian theory as a dialogical discourse analysis. The author explains that Bakhtin had not formally proposed a discourse theory, such as the French Discourse Analysis, but the ensemble of concepts of his theory allows "a *dialogical posture* facing the *discursive corpus*, the methodology and the researcher [author's emphasis]" (p.29; our translation). Text in original: "uma *postura dialógica* diante do *corpus discursivo*, da metodologia e do pesquisador."

[2] In original: "Já da perspectiva teórica bakhtiniana, interpretamos a divulgação científica como uma modalidade de relação dialógica promotora de um elo orgânico vivo entre a ciência, entendida como uma esfera ideológica constituída, e os estratos superiores da ideologia do cotidiano, que operam uma avaliação crítica viva dos produtos da ciência."

genre nor a sphere; it is about dialogical relations between the scientific sphere and other spheres of human or cultural activity (GRILLO, 2013, p.89).[3]

Within the second dimension, it is necessary to give evidence that the DSD utterance is materialized on the Internet, a multimodal environment, characterized by technical and discursive technology. As I have observed in previous research (MACHADO-FERRAZ, 2007; MACHADO, 2012), the digital utterance is also composed by a specific dialogical dimension, the hypertextuality. Therefore, there is an order of dialogical modality within the DSD utterance besides scientific divulgation: the hypertextual dialogical relation, which we could regard as a major instance of dialogism present in these utterances.

Based on the notions proposed by Bakhtin, I intend to analyze some important specifications of DSD utterances: hypertextual dialogical relations, conclusibility and utterance alternation, and, finally, the conditions of production and reception of these utterances. In the next section, I will present a brief historical contextualization of scientific divulgation on the Internet.

1 Scientific Divulgation and the Phases of Development of the Internet

Since the beginning of the Internet usage for commercial purposes, in the latter part of the 1990s, scientific divulgation has found a favorable space for its development within the digital environment. In the historiographical study conducted by Grillo (2003), in order to situate the scientific divulgation utterances in a major temporality, the Internet is identified as one of the social-historical marks that affected the ways of production and circulation of the scientific knowledge:

Through the analysis of philosophers and historians, we realize that the adoption of a discourse genre is revealing of the society, of the

---

[3] In original: "A divulgação científica particulariza-se, portanto, pela exteriorização da ciência e da tecnologia para fora de sua esfera de produção, com a finalidade de criar uma cultura científica no destinatário, ou seja, o seu traço definidor comum encontra-se no que chamaremos de exteriorização da ciência nas instâncias de circulação e de recepção. Não se trata, portanto, nem de um gênero nem de uma esfera, mas de relações dialógicas da esfera científica com outras esferas da atividade humana ou da cultura."

historical moment and of the cultural sphere in which the scientific knowledge is produced and circulates. At first, the European Science is an intersubjective activity and restricted to a small group of literates from that time, hence the use of letters as a genre that, in the seventeenth century, had the function of exchanging information and news. We may pay attention, however, to the fact that, in consonance with the societies, the genres change and, with the development of the familiar intimacy in the eighteenth century, letters became an expression and consolidation of the bourgeoisie subjectivity, a situation that persisted until recently, before the birth of the Internet (GRILLO, 2013, p.60).[4]

The temporality traced by Grillo (2003) closes, without ending, at the same time the temporality of our object of analysis begins: the Internet for commercial purposes. Not only did publications from pressed media vehicles started to have their online versions (for example, the magazine *Superinteressante*), but also different specific editorial segments of the scientific sphere followed the same trend. Far from exhausting the various types of scientific divulgation publications on the web, I intend to give some examples of important Brazilian publications in different moments of the Internet development: the Web 1.0, the Web 2.0, and the Web 3.0.

In its first stage, by the beginning of the 1990s, the content of the Web 1.0 was produced and stored by private enterprises. Its interface was much simpler, but it was already possible to make use of sounds, images, texts, and videos. The individual was a user and a reader of the Internet contents, an interlocutor that did not interfere with the production process of most part of the institutionalized contents of the web. In the same decade, Brazil acquires two important scientific divulgation publications, pioneers in their respective segments: the electronic magazine *Com Ciência* (CC) and the section *Folha Ciência* in the online newspaper *Folha Online* (FO).

The website *Com Ciência*, "an electronic magazine of scientific journalism," was created in 1999 and it is still developed by the students of the scientific journalism course from *LabJor* (*Laboratório de Jornalismo* [Laboratory of Journalism] at

---

[4] In original: "Por meio de análises de filósofos e historiadores, percebemos como a adoção de um gênero discursivo é reveladora da sociedade, do momento histórico e da esfera da cultura em que o saber científico é produzido e circula. Em seus primórdios, a ciência europeia é uma atividade intersubjetiva e restrita ao pequeno grupo de letrados da época, daí o uso do gênero carta que, no século XVII, tinha a função de troca de informações e notícias. Devemos atentar, porém, para o fato de que, em consonância com as sociedades, os gêneros mudam, e, com o desenvolvimento da intimidade familiar no século XVIII, as cartas passaram a ser expressão e reforço da subjetividade burguesa, situação que perdurou até recentemente, antes do advento da internet comercial."

UNICAMP [University of Campinas]). Since its creation, the magazine has had only an online version and has been formed by different discursive genres and thematic dossiers about scientific subjects considered to be polemic or publicly useful to society. The authors and collaborators belong to both journalistic and scientific spheres.

Folha Online, on the other hand, is a publication from *Grupo Folha,* also released in 1999 as "the first newspaper in real time in Portuguese language." The newspaper opens the section *Folha Ciência* in the following year. The utterances published at FO are produced by journalists specialized in some scientific area or in scientific journalism. The vast majority of the articles were imported from the printed version *Folha de S. Paulo* and the science section did not have its own editorial.

In Figures (1), (2) and (3), it is possible to notice the interfaces of both websites and the presence of the hyperlink, normally located on the titles and subtitles of articles and reports.

Fig.1 – Presentation of the thematic dossiers from *Com Ciência* website, Web 1.0.

Fig.2 – Front page of the thematic dossier about Phytotherapy, *Com Ciência,* August 1999.

Fig.3 – An example of interface in an article from Folha Ciência (FO) that was published in 2000.

In their first years of publication, the utterances produced by the two websites had some important similarities and differences. Not allowing users-readers to interact has made them similar. In other words, their interlocutors were consumers of the information that circulated in both sites, a characterizing feature of the Web 1.0. The difference lies in the fact that *CC* was a fully digital publication with no printed version,

while *FO* was the digital version of *Folha de S. Paulo*. I will mention this specific issue regarding the utterance production again in the last section.

Web 2.0 represents the second stage of the Internet development, distinguished by the participation of the user-reader and consolidated in the first decade of the 2000s. The participative or collaborative web has allowed individuals without technical knowledge to become active producers of the utterances. Far beyond sending e-mails or chatting, we have witnessed the birth of the first social websites, such as Orkut (2004) and Facebook (2004), and also tools that facilitate the immediate interaction of the interlocutor, such as the comment box at the end of *FO* articles (see Figure 4), or the share buttons. According to Castells (2009, p.142), "Web 2.0 technology gave consumers the power to produce and spread their own contents."[5]
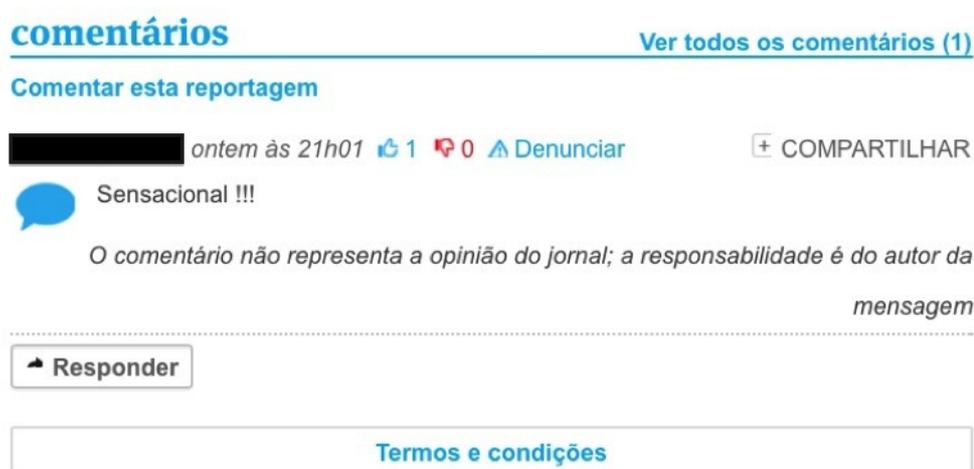
Fig.4 – Commenting tool on the page of FO, 2015.

The *CC* website has not been affected by interactions between readers and author and it still has not included a comment box at the end of the articles. There is only a link to a form, which one can fill out and send it as a private message to the site. We can notice the impact of the Web 2.0 in the visual changes in the design of the site, as well as in the inclusion of content share buttons in 2005. In the same period, *FO* incorporated the same tools and included comment boxes under each article. This has

---

[5] CASTELLS, M. *Communication Power*. Oxford, New York: Oxford University Press, 2009.

enabled the reader to interact and react directly and effectively with contents of the site. The features acquired by both sites at the Web 2.0 are still productive and stable.

We could argue that the difference between *CC* and *FO* regarding their interlocutors may be a result of the spheres from which the two might have emerged. *CC* is strictly a scientific divulgation magazine and the characteristics of the scientific sphere are more consolidated in its genres of discourse. The utterance alternation of the individuals does not happen automatically in written genres (web native or not). For instance, in a linguistics specialized scientific journal, it is not possible to find a comment box in which one can leave direct messages to the authors, at least for now – just like the idea defended by an author in his or her thesis or article that can only be responded or quoted in a direct or indirect citation in another paper or scientific work. By including comment boxes, *FO* has allowed immediate response to its utterances. Unlike the printed newspaper, which gives space to the reader in specific sections, the online newspaper provides their readers with more freedom for interaction. However, this 'freedom' is not truly free, according to Castells (2009):

> The expansion of the Internet, as well as the development of the Web 2.0 and Web 3.0, offers extraordinary commercial possibilities to what I call freedom commercialization: the closing of the free communication collective space that restrains people to living without confidentiality and becoming advertising targets in order to have access to the world social net of communication (p.530).[6]

Currently, with the advent of the Web 3.0, also known as the 'Internet of things,' we experience a transition period. The most slashing feature of Web 3.0 is the individual transformation: more than readers and authors, the individual is seen as a 'prosumer' (RIFKIN, 2014).[7] It is a new dimension of the individual constitution of the digital utterance, registered in a new economic dimension called by Rifkin (2014) "the zero marginal cost society":

> The internet of things insert the built environment in the middle of a coherent functional net: it allows all human beings and all objects to communicate among each other to get synergy, and it facilitates the

---

[6] For reference, see footnote 5.
[7] RIFKIN, J. *La nouvelle société du coût marginal zéro*: L'internet des objets, l'émergence des communaux collaboratifs et l'éclipse du capitalisme. Trad. Françoise et Paul Chemla. Paris: Les Liens qui Libèrent, 2014.

interconexions in order to optimize the society energetic efficacy, assuring the global welfare of the Earth (p.28).[8]

Nowadays, DSD utterances have new ways of production, circulation and reception. The discourse genres consolidated in the dialogical relations within the scientific sphere and other ideological spheres also shelter new and relatively stable types of utterances, such as the scientific blogging, a digital environment with its own editing tools, capable of producing native digital utterances. The use of free software, tools of collaborative work and the open access to scientific content from websites like Scielo has allowed a more direct relationship between experts or laymen and their objects of interest in the scientific sphere. Knowledge becomes cheaper and more easily available, ignoring the physical and social distances that prevent people from accessing it.

It is not possible to establish a break among the stages of the web development, and, despite the fact that the digital utterances absorb the technological aspects in a fast and fluid way, the time of incorporation of these aspects can be very diffuse and heterogeneous. That is why I intend to end the DSD utterances' description of temporality of the present study within the borders of Web 2.0 and Web 3.0. I will then move forward to developing a more detailed analysis of some of the digital utterance aspects.

2 Utterance and Hypertextual Dialogical Relations

Metalinguistics, translated to French as Translinguistic by Todorov, is a discipline presented by Bakhtin in *Problems of Dostoevsky's Poetics* (1984 [1963]),[9] more precisely in the chapter *Discourse in Dostoevsky*. In this important work, the author formulates his thesis about the polyphonic novel by Dostoyevsky with no precedents. Upon observing the inner independence of the characters in relation to the author in the structure of the novel, as well as the plural consciences represented by

---

[8] For reference, see footnote 7.
[9] BAKHTIN, M. *Problems of Dostoevsky's Poetics*. Translated by Caryl Emerson; introduction by Wayne C. Booth. Minneapolis: University of Minnesota Press, 1984 [1963].

them, Bakhtin makes important methodological notes for a dialogical discourse analysis.

First, the author determines the Metalinguistic object of analysis: the dialogical relations. These relations are not reduced to the linguistic materiality, but they confront the language through dialogical angles. Only through dialogical relations can a language make sense and hence become an utterance. Dialogical relations, originally extralinguistic, may occur in different instances, such as among full utterances or fragments of utterances; among different language styles; within the utterance – which refers to the enunciation process itself and what it is composed of –, and between subject and utterance. The analysis by Grillo (2013) points to the fact that there are dialogical relations among different ideological spheres that result in a relatively stable type of utterance, such as the scientific divulgation utterance.

The dialogical relations can be more or less evident or marked in the line between the linguistic and the extralinguistic. As I have assumed before, the digital corpus makes me consider the scientific divulgation as a higher level of dialogism among utterances. On the CC website, we have seen that the lack of tools that enable readers' direct comments bring these utterances closer to the genres of the scientific sphere, but the choice and social pertinence of the subjects on the site and the language style used surely insert the same utterances into the journalistic sphere.

In my view, the hypertextual dialogical relations are a marked form of dialogism, which I have been calling hypertextuality (MACHADO, 2012). This dialogical modality occurs in any technical or linguistic indexing mechanism, such as the hyperlink. This mechanism works as a remission bridge to other utterances, allowing the establishment of senses and the existence of the semantic-axiological relations in the digital environment.

The dialogical relations can happen in different remissive frames: within the utterance; among utterances from the same page; among utterances from different pages of the same website; and among utterances from different sites.

Fig.5 – Fragment of article from the Science section of FO in 15 Jun. 2015.

In Fig.5 above, it is possible to identify some of these remissive frames. The advertisement displayed in the text is also part of the final composition of the utterance. In this hypertextual dialogical relation developed within the source utterance, the sentence "Entenda melhor o mundo em que vivemos hoje" [Understand better the world we live in today] reinforces the importance of reading the information and acquiring knowledge, at the same time it tries to sell a product: the very content of the newspaper.

We can find a second level of remission on the hyperlink that directs the source utterance to another FO page. In this case, its function is to assign more information to the source utterance, and the hypertextual dialogical relation is characterized by complementarity.

Finally, the content share buttons next to the articles lead the reader to external sites, inviting them to share the information from the source utterance. Such hypertextual dialogical relation can show a more or less evaluative tone, depending on the social, historical and ideological position of the reader-author.

3 Conclusibility and Alternance of the Utterance

Under the perspective of the Bakhtinian theory, the utterance is a whole of sense, a non-repeatable unity organized in relatively stable types that we call discourse genres. As a bond in the chain of human communication, the utterance has a responsive character, once it recuperates what was once said and it is also bound to be recovered in future utterances.

Even being a unity of sense, an utterance is never fully finished. Dialogical relations are developed in its very incompletion, forming new utterances and other unities of sense: "[t]he relation to the thing (in its pure thingness) cannot be dialogical [...]. The relation to *meaning* is always dialogical. Even understanding itself is dialogical" (BAKHTIN, 1986 p.121; emphasis in original. [1952-53]).[10]

When it comes to the digital utterance, it has another particularly interesting characteristic: conclusibility. What are the boundaries of an utterance? When is a whole of sense finished to be placed in relation with another one? Besides having a dialogic-responsive nature inherent to every utterance, the digital utterance is also highly responsive.

There are two factors that show the complexity of the digital utterance conclusibility. The first one refers to the non-linearity of the hypertextual digital utterances. The second one is due to the advent of new answering and comment tools from the Web 2.0 on.

Although in the first stage of Internet development the reader-user had occupied a position of simply content audience, it makes sense to assume that he or she had more autonomy over the content than in other media. Such autonomy is distinguished not by the fact that one can choose what to access, but how the access takes place. On

---

[10] BAKHTIN, M. The Problem of the Text in Linguistics, Philology, and the Human Sciences: An Experiment in Philosophical Analysis. In: _____. S*peech Genres and Other Late Essays*. Translated by Caryl Emerson and Michael Holquist. Austin: University of Texas Press, 1986, pp.103-131. [1952-53]

television or radio, we can switch channels or stations all the time. While reading a book or magazine, we can skip pages and make our own non-linear way. On the other hand, what happens on the Internet is a maximization of non-linearity never experimented before. The recursivity of access from one page to another is so great that the reader can completely deviate from the utterance he or she was once interested in – to the point of not returning to it anymore.

In short, the non-linearity feature of digital utterances and the possibility of countless reading paths have contributed to reader autonomy, which has caused a displacement of the utterance conclusibility. The reader can now establish his or her own dialogic relations, generating units of sense that are not necessarily the same unit of sense proposed by the authors of these utterances.

From a technological point of view, the advent of the comment and answering tools is also an important question regarding conclusibility, especially because it enhances a methodological problem. In Figures (6) and (7), we have an example of how comments are present in a social web page. Through the source utterance, which shows an article about the danger of salmonella, readers respond not only to the publication, but also to each other:

Fig.6 – Post published by *Revista Superinteressante* on *Facebook*, 15 May 2015.[11]

---

[11] Free translation of the posted message on the timeline: "The name of the danger is salmonellosis." Free translation of the title of the article: "Why is it dangerous to eat raw eggs?"

Fig.7 – Answers to the post published by *Revista Superinteressante* on *Facebook*, 15 May 2015.[12]

Furthermore, other aspects affect the conclusibility of the utterances. A post that was published two years ago on *Facebook* can still receive answers today, for example. Another issue is the fact that posts and answers can be erased. On some sites, the author dominates the comment section, and it is up to him or her to accept or erase someone's answers. The analyst can easily lose the phenomenon of someone else's response appropriation. On some other sites, the author can decide whether to keep, change or erase the answer. So, how can we capture these deletions and even the continuous editions of the native digital utterances? Even if the source utterance preserves its conclusibility as signaled by the period marked by the author, the same utterance can be completed by the senses of the direct answers, in which a new conclusibility is set.

---

[12] Free translation of the comments from the top to the bottom: "It is not dangerous"; "Not even fried it is so delicious"; "The probability of consuming a contaminated egg is smaller than winning the lotto"; "So my son has won it"; "I also had the same displeasure"; "Not really, I have already eaten at least two (contaminated eggs); it (the proportion) is more or less three in each ten (eggs)."

4 Production and Reception of the Digital Scientific Divulgation Utterance

To conclude this brief analysis about DSD utterances, I highlight some production and reception questions regarding digital utterances. One of the important aspects of the dialogic relations shown by Bakhtin in *Problems of Dostoevsky's Poetics* (1984[1963])[13] is the fact that the utterance has an author. Within the digital utterance context, this is becoming a very complex question, once the lines between the author and the interlocutors are becoming finer and finer.

As I have said in the sections above, since the birth of the Web 1.0, the reader-user has had much more autonomy regarding his or her reading paths, which has impacted the dialogical relations and the sense effects created. From the moment readers start to answer directly to Internet utterances – Web 2.0 – they also begin to be their authors. Any digitally literate person who has Internet access can have their own page on social websites and even their own websites. Nowadays, the digital environment is made by individuals who take turns being in the discursive positions of authors and interlocutors.

This change in the utterance reception sphere has brought changes not only to the sense effects of the author's source utterance, but also to the way he or she produces their senses. We must consider the digital environment's high level of responsivity and the constant and immediate evaluative tones of the interlocutor's answers.

Another challenge to the discourse analyst is to understand who the producers and interlocutors of digital utterances are. We can set the extreme life exposure on one side – individuals giving personal information, as well as social and personal life data – and the anonymity on the other side. Both directions of individual position can influence the concretization of the utterance, whether to protect an individual identity or to preserve someone's face – which in many cases enables the insertion of an open polemic, without negative direct sanctions against the author.

Regarding the production sphere, the electronic utterance also presents particularities. Paveau (2014-15) proposes a linguistic typology regarding the written production on the web: the typed, the digitalized and the digital document.[14] The

---

[13] For reference, see footnote 9.
[14] In the original in French, the author uses the following terms: "numérique," "numérisé," and "numériqué."

digitalized document is the one produced in electronic context that may or may not be published online. Although it holds a few digital environment characteristics, such as hyperlink, this is not a native web utterance and does not present what the author calls "techno signs," such as the content share buttons.

The digitalized character is attributed to a printed document that has been imported to the digital space through software or a specific machine, as the printer. With the use of tools such as PDF, we can make interventions or marks on the document, and add comments, the same way we would in a printed book.

Finally, the author defines what a digital document is – produced by digital tools, thus digital native:

> A natively online product, on a website, blog, or social web, all places of digital reception and discourse production. It presents traces of non-linearity of the discursive thread, technogeneracy and plurisemiocity (PAVEAU, 2014-15, p.7).[15]

Paveau's (2014-15) typology calls attention to the diffuse production process of the digital utterances on the Internet, a condition that modifies the constitution of the utterances and consequently the types of dialogical relation among them. A native digital utterance enables more hypertextual dialogic relations, once it is made of more sophisticated remissive mechanisms.

Conclusion

In this paper, I intended to point out some specifications of the scientific divulgation utterance within the digital environment. This kind of utterance has a complex constitution due to its hypertextual dialogical relations and to the scientific divulgation, which would be a superior dimension of dialogism, printing on the utterances implicit and explicit marks from different spheres.

The objective of this study was not to present a full dialogical analysis of the DSD utterances, but rather to raise essential aspects of the digital utterance for this

---

[15] Free translation of the original in French: "Un document numériqué est produit nativement en ligne, sur un site, un blog, ou un réseau social, tout lieu numériqué accueillant de la production de discours. Il présente des traits de délinéarisation du fil du discours, d'augmentation énonciative, de technogénéricité et de plurisémioticité."

analysis. The hypertextual dialogic relations, such as the conclusibility of the utterance and its production and reception processes, are indispensable elements that may help us identify the effect senses that circulate in the digital environment.

It was possible to identify that the features of the discourse genres from the scientific sphere are still preserved on the digital utterance. The scientific divulgation sites have been adding technological improvement to their utterances, especially regarding the access to scientific knowledge. Meanwhile, major media vehicles situate scientific divulgation utterances among different tools of interactivity, such as hyperlinks and content share buttons. Due to a more heterogeneous audience, this might be a strategy to approach the interlocutor, turning them into potential product consumers. The way the different spheres incorporate the digital technologies can say much about our time and identity.

REFERENCES

ANGELO, C. Amazônia tinha fazenda de peixes. *Folha de S. Paulo, Ciência*, São Paulo, 09 nov. 2000. Disponível em: [http://www1.folha.uol.com.br/fsp/ciencia/fe0911200003.htm]. Acesso em: 20 maio 2015.

BAKHTIN, M. O problema do texto na linguística, na filologia e em outras ciências humanas. In: *Estética da criação verbal*. Trad. Paulo Bezerra. São Paulo: Martins Fontes, 2003, p.307-336. [1952-53]

_____. *Problemas da poética de Dostoiévski*. Trad. Paulo Bezerra, 5. ed. Rio de Janeiro: Forense Universitária, 2010. [1963].

BRAIT, B. Análise e teoria do discurso. In: BRAIT, B. (Org.). *Bakhtin*: outros conceitos-chave. São Paulo: Contexto, 2006, p.9-31.

CASTELLS, M. *Communication et pouvoir*. Trad. Margaret Rigaud-Drayton. Paris: Éditions de la Maison des Sciences de L'homme, 2013. [2009]

GRILLO, S. V. C. *Divulgação científica: linguagens, esferas e gêneros*. Tese apresentada à Faculdade de Filosofia, Letras e Ciências Humanas como requisito parcial para obtenção do título de livre-docente. São Paulo: Universidade de São Paulo, 2013.

LOPES, C. S., COLOMBI. D., MACHADO I., MELLO L. C. e CELERE S. Entre o conhecimento popular e o científico. In: *ComCiência*. Disponível em: [http://www.comciencia.br/reportagens/fito/fito7.htm]. Acesso em: 04/11/2015

MACHADO-FERRAZ, F. S. *Gêneros da divulgação científica na internet*. Dissertação de mestrado – Faculdade de Filosofia, Letras e Ciências Humanas, Universidade de São Paulo, São Paulo, 2007.

MACHADO, F. S. *Hipertextualidade: uma abordagem bakhtiniana sobre relações dialógicas entre enunciados em rede*. Tese de doutorado – Faculdade de Filosofia, Letras e Ciências Humanas, Universidade de São Paulo, São Paulo, 2012.

PAVEAU, M.-A. Ce qui s'écrit dans les univers numériques. Matières technolangagières et formes technodiscursives. In: *Itinéraires ltc,* dossier Textualités numériques, 2015 [2014]. Disponível em: [http://itineraires.revues.org/2313]. Acesso em: 20/05/2015.

RIFKIN, J. *La nouvelle société du coût marginal zéro*: L'internet des objets, l'émergence des communaux collaboratifs et l'éclipse du capitalisme. Trad. Françoise et Paul Chemla. Paris: Les Liens qui Libèrent, 2014.

SALVADOR, N. Dados de sonda que hibernavam são bons, diz engenheiro. *Folha de S. Paulo, Ciência*, São Paulo, 16 jun. 2015. Disponível em: [http://www1.folha.uol.com.br/ciencia/2015/06/1642060-sonda-que-pousou-em-cometa-desperta-de-hibernacao-de-7-meses.shtml]. Acesso em : 04/11/2015.

ZAMBONI, L. M. S. *Cientistas, jornalistas e a divulgação científica:* subjetividade e heterogeneidade no discurso da divulgação científica. Campinas: Autores Associados, Fapesp, 2001.