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Letramentos na Formação do Jovem Pesquisador

Literacies for Young Researchers
Literacidad en la Formación del Joven Pesquisador

CECILIA AGUIRRE[1]
[1]Universidade Federal da Bahia

RESUMO: *Este ensaio objetiva analisar os conceitos de letramento funcional, cientifico e digital propostos por Atta e Hetkowski (2019) a partir dos Novos estudos de Letramento (Street 1984, 2014 2017) e Multilitetramentos (Grupo de Nova Londres, 2002). Com base em pesquisa bibliográfica e exploratória, autores como Halliday e Martin, (1993), The New London Group (2000), Chassot (2003), Norris e Philips (2003), Bakhtin (2006), Moita Lopes (2006), Kleiman (2008), Romani (2012), Buzen (2014) Rojo (2015, 2019), Cunha (2017),* Ferreira and Lousada (2017), *Hetkowski e Menezes (2019), Atta e Hetkowski (2019) sustentam a arguição. Da análise se depreende por um lado, que a conceituação de letramentos proposta por Atta e Hetkowski (2019) tende a refletir a noção de letramento autônomo de Street (1984, 2015, 2017) se afastando assim dos objetivos do GEOTEC. Por outro lado, uma abordagem sociocultural e situada dos letramentos estaria mais de acordo com os objetivos de formação do GEOTEC.*
LETRAMENTO AUTÔNOMO. LETRAMENTO CIENTÍFICO. LETRAMENTO DIGITAL. LETRAMENTO IDEOLÓGICO.

ABSTRACT: *This paper aims to discuss the notions of functional, scientific and digital literacy proposed by Atta e Hetkowski (2019) under The New Literacy Studies (Street 1984, 2014, 2017) and Multiliteracies (The New London Group, 2002). Based on research of a bibliographical and exploratory nature, authors such as Halliday and Martin, (1993), The New London Group (2000), Chassot (2003), Norris e Philips (2003), Bakhtin (2006), Moita Lopes (2006), Kleiman (2008), Romani (2012), Buzen (2014) Rojo (2015, 2019), Cunha (2017), Ferreira and Lousada (2017), Hetkowski and Menezes (2019), Atta and Hetkowski (2019) support our discussion. As a conclusion, it is argued that the concept of literacy uphold by Atta e Hetkowski (2019) is inclined to reflect the notion of autonomous literacy defined by Street (1984, 2015, 2017), thus drawing apart from GEOTEC's objectives. On the other hand, a sociocultural and situated approach to literacy shows its affinity with GEOTEC's formative objectives.*
AUTONOMOUS LITERACY. IDEOLOGICAL LITERACY. DIGITAL LITERACY . SCIENTIFIC LITERACY.

RESUMEN: *Este ensayo objetiva analizar los conceptos de literacidad funcional, científica y digital propuestos por Atta e Hetkowski (2019) a partir de los Nuevos Estudios de Literacidad (Street 1984, 2014 2017) y Multilitetracidad (Grupo de Nueva Londres, 2002). Con base en pesquisa bibliográfica y exploratoria, autores como Halliday e Martin, (1993), The New London Group (2000), Chassot (2003), Norris e Philips (2003), Bakhtin (2006), Moita Lopes (2006), Kleiman (2008), Romani (2012), Buzen (2014) Rojo (2015, 2019), Cunha (2017), Ferreira and Lousada (2017), Hetkowski e Menezes (2019), Atta e Hetkowski (2019) sustentan la argumentación. Del análisis se deduce que el concepto de literacidad propuesto por Atta e Hetkowski (2019) tiende a reflejar la noción de literacidad autónoma (Street 1984, 2015, 2017) alejándose de esta forma de los objetivos del GEOTEC. Por otro lado, un enfoque sociocultural y situado de literacidad estaría más de acuerdo con los objetivos formativos del GEOTEC.*

LITERACIDAD AUTÓNOMA. LITERACIDAD CIENTÍFICA. LITERACIDAD DIGITAL. LITERACIDAD IDEOLÓGICA.

Introduction

The reflections on this essay result from the bibliographic and exploratory stage of the postdoctoral research I develop at GEOTEC, Geotechnologies, Education and Contemporaneity Research Group linked to the PostGraduate Program in Education and Contemporaneity, Department of Education (DEDC1) of the State University of Bahia. The core researchers are organized into three projects that constitute a collaborative ecosystem (Atta and Hetkowski, 2019, pg. 111), namely, The Radio School at The School of Radio; K-Lab, or Project Lab, Educational and Technological Processes; and REDEPub, History and Memory. The projects promote educational actions in conjunction with partner schools and with society.

Founded in 2007, the center aims to disseminate the development of Science and Technology in schools through the training of young researchers from discussions, reflections, uses, potentialities and resizing of digital technologies as means of communication between school and community. GEOTEC develops pedagogical proposals, analysis of textbooks, redefinition of Political Pedagogical Projects, scientific productions, book publications, workshops and training courses, technical visits and activities in laboratories always involving teachers, students, uneb researchers and teachers and students from participating public schools.

According to Atta and Hetkowski (2019, p.111), in the aforementioned collaborative ecosystem between university and school there are already actions that promote multiliteracies; warn, however, that the group's actions in this perspective could be reorganized to evolve, innovate and enhance the results. Thus, this essay is born with the purpose of contributing to this discussion from the epistemological point of view of Applied Linguistics on the interrelationship between (multi)literacies and the formation of the young researcher.

In this essay, I propose a reflection on the act of educating as a responsible act, with regard to Linguistic and Scientific Education in contemporary times, thinking about the teacher's work in relation to teaching knowledge and their ethical responsibility. I place my discussion in the framework of an (In)disciplinary Applied Linguistics (Moita Lopes, 2006), in dialogue with the New Literacy Studies (Street, 1995/2014) and the Multiliteracies (Cope & Kalantzis, 2000, 2015). To this end, the concept of literacy, autonomous and ideological literacy according to Street (1984, 2014, 2017) will be presented in the first section and in the second section the notions of functional, scientific and digital literacy proposed by Atta and Hetkowski (2019) will be discussed.

1 Contextualizing the discussion about literacies

As mentioned earlier, the main objective of the GEOTEC Research Group is the development of Science and Technology in schools through the training of young researchers with basis on the scope of practice involving Basic Education/Scientific Education/Technological Processes. Atta and Hetkowski (2019, p. 112) emphasize the importance of the researcher as an active subject in all phases of the research work who, from a critical look at reality, contributes to the development of scientific research and the construction of knowledge. Atta and Hetkowski (2019, p.116) defend the thesis that initiatives that promote the intertwining of functional, scientific and digital literacies will contribute to the formation of citizens capable of facing social, academic and professional challenges, transforming them into critical beings, cognitively prepared to discover new knowledge, creative, collaborative, ethical and fit for action in the world. The authors also highlight the need for this researcher to master proficiently the complex academic and scientific skills required.

This discussion forms part of the scope of Applied Linguistics (In)disciplinary, (Moita Lopes, 2006), since it addresses issues related to literacies that affect social life in the contemporary world, globalized, organized in communication and information networks, where multisemiotic messages circulate, which give reading and writing in society a tessitura that the school and the university must incorporate. Educational institutions cannot be left on the fringes of this reality. Therefore, I understand that being a teacher in contemporary times implies embracing the multiplicity, the inter and transdisciplinarity of knowledge, implies being able to situate oneself in the borders of this knowledge, implies the understanding that language is also multiple and multimodal, changing, situated and dialogical, and from this awareness, being able to promote intervention in reality and social change.

This highlights the affinity of objectives and concerns between the areas of Applied Linguistics and Education. In fact, the approach to written culture, or to literacy as a social practice, has been the object of interest of several of the human sciences. However, according to Bunzen (2014, p. 7) it has risen, from the area of Education and Applied Linguistics, a rich interdisciplinary dialogue with the Literacy Studies from the French and Anglo-Saxon schools of literacy. According to the author, this dialogue challenges the Brazilian academy to understand reading and writing not only from the psycholinguistic point of view, but also from historical, anthropological and cultural points of view, together with a critical eye on power relations. The author also points out that in the courses of Linguistics and Pedagogy the concept of literacy and its implications in teachers' professional practices is already being discussed, providing the opportunity to reflect on the relation between development of literacy programs and possibilities of social change; on the importance of thinking literacy as a plural concept; on the uses of literacy in specific and situated contexts, through the contribution of ethnographic studies; on the implications of literacy studies for Pedagogy, among other issues (Bunzen, 2014, p. 10)

As a result, I consider it pertinent to discuss the conception of literacy that underpins GEOTEC's work in the light of the New Literacy Studies by Street (1984, 2014, 2017) and Multiliteracies by Cope & Kalantzis (2000, 2015). It is also pertinent to address the concept of scientific literacy according to Cunha (2017), digital literacy and multiliteracies according to Rojo (2015, 2019) and academic literacy according to Ferreira and Lousada (2017).

1.1 Autonomous literacy and ideological literacy.

Brian Street (1984, 2014, 2017) reinforces the notion of literacy as a social practice and criticizes the conception of literacy as a set of cognitive abilities that can be measured.

Street (2014, p. 104) defines the autonomous model of literacy, which presupposes the neutrality of the writing activity, with meaning per se which facilitates logical functions of language separated from interpersonal functions, so that the written utterances are not socially embedded, thus creating a more

objective and scientific use of language. According to the author, it is assumed that the acquired literacy will have an effect and consequences in social and cognitive practices, hiding, however, the cultural and ideological premises that sustain it, making them pass as neutral and universal. It can thus be sustained that autonomous literacy is functional to the dominant ideology.

As an alternative, the ideological model proposed by the author has a culturally sensitive view of literacy, considering that literacy practices differ from one context to another. Contrary to the concept of autonomous literacy, ideological literacy is based on the premise of literacy as a social practice, always based on socially constructed epistemological principles.

On the other hand, it should also be mentioned the conceptualization of functional literacy according to Street (1984, 2014). This is characterized by its relationship with the development of work and the economy, usually through the acquisition of knowledge and skills of reading, writing and arithmetic, so that the subject can engage in social activities and "function well" in the communities or social groups to which he belongs.

For Street (2017, p. 3) the way in which teachers and students interact is already a kind of social practice that affects the nature of literacy, as well as the conception of literacy of the participants, particularly new students and their positioning over power relations. For the author, there is a consensus among academics and researchers who work with literacy that the autonomous model, based on which many teaching programs are designed, does not constitute an appropriate intellectual tool, because it does not allow understanding of the cultural diversity of reading and writing practices or planning the program that these practices require, more in accordance with the ideological model.

These definitions led me to reflect on the conceptualization of functional literacy, scientific literacy and digital literacy proposed by Atta and Hetkowski (2019).

Atta and Hetkowski (2019) state that "dealing with science requires prior and proficient mastery of reading and text interpretation techniques as well as proficiency in writing in a given language" (Atta & Hetkowski, 2019, p.112). They refer to this mastery of reading and writing skills as "functional literacy" (Atta & Hetkowski, 2019, p.113) and they mainly base their discussions on Norris and Philips' (2003) notion of scientific literacy and its pedagogical implications in the teaching of sciences (natural and exact) in primary school (Canadian).

Norris and Philips (2003, pg. 226) argue that reading and writing do not only assume a functional relationship with regard to science, as simple storage and transmission tools. On the contrary, they understand the process of reading and writing as a constitutive part of science. They distinguish between the fundamental and the derived sense of scientific literacy, emphasizing that although the conception of scientific literacy privileges its derived meaning, in the teaching of science in the Canadian school the fundamental sense is usually neglected.

According to Norris and Philips (2003), literacy in the English language is referred to from two different perspectives: on the one hand, literacy is understood as the ability to read and write; on the other hand, literacy is understood as erudition, knowledge, learning and education. Thus, they define the ability to read and write as the fundamental meaning of scientific literacy; while they understand knowledge and as the derived meaning of literacy.

Thus, for Norris and Philips (2003) to read means much more than simply knowing the words, reading with ductility, identifying and locating information and summarizing or memorizing content. For them to read means understanding, interpreting, analyzing and criticizing the text: "That is what the fundamental sense of literacy encompasses"[i] (Norris and Philips, 2003, p. 229). Still with regard to the reading of a scientific text, for Norris and Philips (2003, p. 229) this covers much of what they consider to be science. Reading a scientific text implies recognizing an inference, a hypothesis, a conclusion, an assumption, truth or doubt or conjecture, when something constitutes evidence, justification or explanation. Without the understanding of these elements inherent to scientific texts, the reader may fail to understand its meaning, that is, fail to go beyond its surface, and thus fail to understand what science is. On the other hand, without the written scientific text and its properties of word fixation, for the authors it would be impossible to engage in the social practices that make science possible, for example

through the recording and presentation of data, peer review elsewhere in the world, critical examination of previously published papers, linking new ideas, etc. Thus, they conclude that the primary access to scientific knowledge is carried out through the reading process, so it is through reading that one learns the substantial content of science and its epistemology, being the written text, together with its multiple properties and semiosis, an essential part in the construction of field by the scientific community.

Norris and Philips (2003) support their argumentation in the notion of text and written language according to functional systemic linguistics, according to Halliday and Martin (1993), which gives prominences to the lexical and grammatical characteristics of scientific writing, placing grammar in the foundation of knowledge and ideology of scientific practice (Halliday & Martin, 1993, p.13).

In my opinion, Norris and Philips' (2003) definition represents what Street (1984, 2014, 2017) defines as autonomous literacy, that is, literacy as a set of specialized technical reading and writing skills, detached from social context, the mastery of which allows access to scientific knowledge and interaction in the scientific and academic environment. This conception of reading along with the perspective of a scientific writing anchored in grammar is consistent with the idea of a "prior and proficient mastery of reading and interpretation techniques together with proficient writing in a certain language" defended by Atta and Hetkowski (2019, pg.112, emphasis mine) and referred to by the authors as "functional literacy". Consequently, I understand that this conceptualization dissociates reading and writing from the dialogical and responsive process that characterizes the situated language, rich in ideologies and valorization (Rojo, 2015, pg. 42) thus reinforcing the idea of a neutral and universal language, neutral and universal, of a cognitive and individual nature.

Similarly, the notion of digital literacy sustained by Romani (2012, as cited in Atta & Hetkowski, 2019, p. 113) is based on documents from international bodies such as the Knowlege Economy Index or the Organization for Economic Co-Operation and Development for Economics (OECD). Therefore, Romani (2012, as cited in Atta & Hetkowski, 2019, p. 113) focuses his efforts in developing an updated definition of "digital skills" and identifying strategies and instruments adopted by the OECD to analyse and evaluate the development of digital literacy globally. In this perspective, Romani (2012, p. 852) defines knowledge, competence and skills. In addition, he lists a classification of specialists, skills in information and communication technologies, professionals and users, e-commerce, among others, as well as the five concepts that are constituent sums of the expression "digital skills", all of which have a strong emphasis on productivity and the capacities required by the European labour market. Romani (2012, p. 859) also defends the Lisbon Summit's concern to achieve high levels of employability of the European workforce and poses a transnational challenge (Romani, 2012, p. 863) to test and certify formally and informally acquired digital skills.

In fact, Romani (2012, as cited in Tissot, 2004, p. 852) considers the competence classification proposed by Cedefop as "skills and competences necessary to function in contemporary society (such as listening, speaking, reading, writing and doing mathematical calculations) and new basic skills, which refer to ICTs, foreign languages, technological culture, and social entrepreneurship". I return here the concept of autonomous literacy of Street (1984, 2014, 2017) which, transposed to the definition of digital skills described above, supposes a range of knowledge and skills dissociated from social context, measurable and of a cognitive nature, which should be acquired and which by themselves will promote one´s insertion in the labour market. This literacy model hides the ideological and cultural precepts that sustain it, making them appear as neutral or universal, thus favouring dominant ideology and social practices.

In summary, the notion of "prior and proficient domain" (Atta & Hetkowski, 2019, p.112) and "digital literacy" (Romani, 2012, p. 113, as mentioned in Atta and Hetkowski, 2019) refers to an autonomous, neutral and universal literacy that reflects the dominant ideology, which thus remains unquestioned. Thus, the idea of "functional literacy" (Atta & Hetkowski, 2019, p. 113) refers to a concept of literacy that does not prove itself relevant to the formative objective of scientific initiation proposed by GEOTEC. Consequently, I venture to affirm that the literacy views defined contradict the intended objective of forming "citizens better prepared, qualified and competent to deal with social, academic and professional challenges [...] critical, cognitively prepared to discover new knowledge, creative,

collaborative, ethical " (Atta & Hetkowski, 2019, p.116). I consider this objective of great importance; however, I believe that the autonomous literacy model or the notion of functional literacy described here can barely contribute to form young critical and reflective researchers.

With regard to the conceptualization of scientific literacy, Atta and Hetkowski (2019, as mentioned in Chassot, 2003, p.112) argue that the understanding of science from processes of "scientific literacy" in formal spaces of education contributes so that the student can understand, control and predict the transformations that occur in nature and in the social environment in which he lives.

First, I consider it necessary to reflect on the use of the term "alphabetization" instead of "literacy". For Cunha (2017) there is no consensus among researchers in the new area of scientific dissemination and science teaching regarding the use of the term scientific literacy. The author defends the use of the expression "scientific literacy" by establishing a parallel with the definition of literacy within the area of language teaching:

> Just as in language teaching and writing acquisition it is not enough just to learn to read and write (that is, to be alphabetized), but it is relevant to make effective use of writing in social practices (that is, being literate); then science teaching should also be concerned, among other things, with the social implications of science and technology, with the risks and benefits of each scientific or technological advance –and not only in a secondary way, but considering its due importance (Cunha, 2017, p. 175)

For the author, the debate around scientific literacy goes towards the construction of a solid basis that sustains the participation of the public and their representatives in political decision-making to assess the benefits and risks of each scientific and technological advance, the ethical issues involved, the socio-environmental impacts compared to economic ones, among other issues. In this sense defended by Cunha (2017), scientific literacy is associated with the notion of literacy in the ideological model (Street 1984, 2014, 2017) and refers to the social appropriation of science and technology knowledge that will enable the population to evaluate costs and benefits of scientific and technological advances and take part in decision making, as referred above.

Nevertheless, according to Cunha (2017, p. 176) science teaching is the field where the use of the term scientific "alphabetization" predominates and cites Attico Chassot (2003) for being one of the authors who published the most on this topic. Cunha (2017, p. 177) questions Chassot's statement (2003, p.91) that "To be scientifically literate is to know how to read the language in which nature is written. It is a scientific illiterate that incapable of a reading of the universe."

For Cunha (2017) this definition excludes any "unscientific" reading of the universe and invalidates traditional popular knowledge, in the same way as in the area of language the teaching of writing brings consequently the distancing from the oral language, each with a different status and prestige, as well as with different uses and functions in society. This distancing, concludes Cunha (2017, p. 178) represents the distance between a dominant culture and another of lower prestige, which is manifested by the hierarchy of knowledge and the power relationship between the teacher, as a transmitter of a type of knowledge considered legitimate, and the student as a mere recipient of this knowledge. With reference to Chassot (2003, p.91), Cunha (2017, p. 179) states: "in the teaching of science, the assumption of 'illiteracy' for any reading of the world other than 'scientific' takes away all legitimacy from traditional knowledge". As an alternative to this authoritarian and unidirectional school model of knowledge transmission, Cunha (2017, p. 180, as mentioned in Costa et al, 2010) suggests models of scientific dissemination of a dialogical tendency, in which local knowledge may have the same importance of scientific knowledge in problem solving, thus valuing the relationship between science, technology and society.

As a conclusion, in the opposition between the uses of "alphabetization" (linguistic or scientific) and literacy (linguistic or scientific) evidences the confrontation between two struggling ideologies: a

dominant, schooled and prestigious ideology and the other traditional and popular, marginalized. Such conflicting conceptions can be analysed with basis on the autonomous model of literacy (Street 1984, 2014, 2017) which strives to resist. Similarly, the notion of "prior and proficient domain" (Atta & Hetkowski, 2019, p.112) and "digital literacy" (Romani, 2012, p. 113, as mentioned in Atta & Hetkowski, 2019) refer to an autonomous, neutral and universal model of literacy that covers the dominant ideology. I understand that this literacy model could contribute little to the formation of young, critical, reflexive and ethical researchers.

On the other hand, a conception of literacy that relies on the ideological model (Street, 1984, 2014, 2017), that is, that stems from the premise of literacy as a social practice, will defend socially constructed epistemological principles and offer a culturally sensitive view of literate practices. This certainly will stimulate in young researchers the ability to problematize the ideologies on which literacy practices rely, and to question assumptions and naturalizations, in attention to the voices and values of discourses circulating in academia/in the scientific community.

Finally, I agree with Rojo (2015, 2019) concerning the existing harmony between literacies as social practice and Bakhtin's Philosophy of Language, since both understand language as an entity that materializes in interaction, communication, social life, dialogical relationship between subjects. According to Rojo (2015, p. 42), genres give form to discourse, to enunciation, and have theme and meaning as the vehicle of ideology and valorisation: what prevails in the genre are "the effects of discursive meaning, ideological echoes, voices and appreciations of value that the subject of discourse makes through utterances". (Rojo, 2015, p.42).

According to the author, ideology and value are the aims of every utterance, constituents that mark the difference between, on the one hand, enunciation, genres and forms of discourse, in opposition to text, textual genres and textual forms. Referring to Bakhtin, Rojo (2015, p. 44) adds that the definition of genre is subordinated to the diverse social functioning of human institutions, spheres of activity or fields of verbal communication, within which are the academic and scientific spheres.

In the following section I will make some considerations about the challenges that sociocultural-based literacy poses for school and teachers.

2. Discussion. What is literacy anyway? Challenges and proposals

As mentioned earlier, the main objective of GEOTEC Research Group is the development of Science and Technology in schools through the training of young researchers based on the tripod Basic Education/Science Education/Technological Processes. Atta and Hetkowski (2019) emphasize the importance of the researcher as an active subject in all phases of the research work, whose critical look on reality can contribute to the development of scientific research and the construction of knowledge. The authors also highlight the need for this researcher to master the complex academic and scientific skills that the exercise of the profession demands. In this context, bakhtinian concepts gain relevance, such as that of spheres of communicative activity (including the colloquial, journalistic, academic, scientific, literary, religious, legal, military and advertising spheres, among others) and genres of discourse, as well as the dialogical nature and the responsible and responsive essence of subjects of discourse,. "All full understanding is actively responsive" (Bakhtin, 2006, p. 272)

Bakhtin (2006, p. 278) highlights the dialogical nature of the discursive act, in which utterances constructed with the aid of units of language are exchanged, which do not constitute in themselves units of communication if not imbricated in the discursive web itself. The scientific genres themselves, such as specialized and complex discourses, are also by nature units of discursive communication that is, delimited by the dialogical alternation of the subjects of the discourse, where each reveals his individuality in style, in his vision of the world. In this view, this individuality of style implies other individualities and previous views of the world, constituted in the historicity of the sphere of activity/language, in which the

author/speaker/subject of the discourse bases his utterance and print his responsive and responsible value in the discursive act.

Notwithstanding, the forms of language are as indispensable for mutual understanding as the genres of discourse (Bakhtin, 2006, p. 285) themselves. Thus, for Bakhtin (2006, p.289) every utterance is characterized first by its semantic-valorative content, and then, from this task/idea of the subject of discourse/author, centered on the object of meaning, to determine the choice of linguistic media and genres of discourse in order to express its active responsive position. This means that grammar is embedded in the genre, it does not constitute privileged, abstract content, dissociated from the context in which the utterance was generated, on the contrary, grammar is an integral part of the utterance, of the genre of discourse and of the sphere of communicative activity to which it belongs.

This dialogical and situated nature of discourse genres constitutes the basis of literacy. For Rojo (2019, p. 16), the term literacy encompasses the social uses and practices of language that involve the writing of one way or another, whether socially valued or not, local (specific to a specific community) or global, covering diverse social contexts (family, church, work, media, school, etc.), in social groups and culturally diverse communities. She states that it is precisely with this participation in the various literate practices that the most advanced levels of linguistic/discursive mastery can be acheived. This statement is in line with the need expressed by Atta and Hetkowski (2019, p.112) to train proficient scientists in the academic use of the language.

I understand that the act of educating, as a responsible act, implies understanding that our epistemological options are always of an ideological and political nature and, consequently, they have ethical implications in the life and training of our students. In this sense, I consider that located, democratic and humanized pedagogical practices can provide both appropriation of learning processes and development of the linguistic/discursive consciousness, promoting the students' position as subjects of discourse, responsible and responsive, in Bakhtinian terms, for the exercise of ethical citizenship and critical reflection, both of which lead to changes in the social contexture.

With regards to pedagogical practice, I agree with Kleiman (2008, p. 508) on the need to structure teaching around social practice as a didactization strategy, in order to address genres of discourse, whether it is in form of a research project, a dissertation, a journalistic note or a blog, these being linguistic objectives as well. In other words, according to Kleiman (2008), the social reality of students defines the activity, which in turn moves them into action. Only then the relevant genres for the group are selected to act in the problematized social situations and perform the activities. (Kleiman, 2008, p. 507). This strategy of didacticization of social practice makes sense since the main objective is the formation of autonomous and competent users of the written language.

Similarly, I agree with Cunha (2017, p. 178) that school culture, and the university culture also, still has ingrained, as a vestige of an authoritarian and homogenizing teaching, the devaluation of the student's knowledge and the overvaluation of canonical knowledge to be taught. In a responsible and responsive attitude, Cunha (2017, p. 182) proposes that the notion of scientific literacy could be explored in all its potential through the journalistic coverage on science and technology, in a joint transdisciplinary work between teachers. That is, this project should not only involve Portuguese language and science teachers, but also chemistry, physics and biology teachers, and even history and geography teachers, in collaborative transdisciplinary work. It considers the use of news conveyed by the media in the school learning process a requirement of the modern world, since learning, which transforms information into knowledge by reflection, is not due to mechanical repetition but by discussion, contextualization, rethinking and reconstruction of the information presented.

Thus, referencing Ayala (1996), Cunha (2017, p. 176) states that scientific literacy does not mean "detailed knowledge of scientific constructs, as transmitted in textbooks of physics, chemistry, psychology or genetics". Nor does it imply that a scientifically literate person should know that DNA expression is measured by transmitting RNA molecules. Scientific literacy implies that the decision whether to support or not a government program in the energy area, for example, should not rely on beliefs about its environmental consequences, or on the ignorance of the problems that it will entail or

solve, as is the case, for example, of the construction of power plants, whether nuclear, coal-based or hydroelectric. Cunha (2017) signals to the fact that in recent decades the debate on the need for conscious participation of the public and their representatives in political decision-making has taken place. Discussion and reflection on the benefits and risks of each scientific and technological advance, on the ethical issues involved, the socio-environmental and economic impacts, among other issues involving science and technology the scientific literacy approach.

Finally, parallel to scientific advances, technological advances in relation to a pedagogy of multiliteracies also deserve attention. The proposal of a pedagogical reform based on literacy practices, through socially situated educational experiences, aiming at a fairer society, requires the incorporation of digital literacy into the educational scope. Students belong to digital culture and networked society, characterized by the dizzying flow of information, conveyed in different modalities of meanings, where the written letter divides space with imagery, visual, sound, gestural, spatial language, among other semiosis. Thus, it is necessary to create opportunities for discursive analysis, for the description and interpretation of ideologies, for critical approximation to contexts where meanings are constructed and to the virtual environment where these meanings are transformed.

In this sense, multiliteracies pedagogy offers opportunities for learning and teacher training with focus on the discursive event in cyberspace, offering pedagogical instruments that allow addressing the multimodality and multiculturalism inherent to digital culture. Thus, the New London Group (2000) proposes that education should form young designers capable of understanding, producing and transforming multiple semiosis, knowledge that will definitely add to their insertion in the world of work, public sphere and in the community.

I agree with Hetkowski and Menezes (2019, p.223) that the insertion of digital technologies and mobile devices is slowly happening in schools, but nonetheless bringing great incentive for students and teachers. The authors affirm that there is a process of resignification of pedagogical practices underway, process which aims at the use of digital technologies together with the various resources they offer – photos, videos, audio- which stimulate and develop skills in the learning process and experience social practices inside and outside school spaces. Regardless of the educational level, the creative process triggered by mobile devices presents itself as a rich field for the development of (multi) literacies, intended to form ethical, responsible and responsive citizens.

Finally, with regards to pedagogical practice in higher education, I agree with Atta and Hetkowski (2019) and Ferreira and Lousada (2017) that it must meet the linguistic demands of the academic community, demands that evolve not only reading, but also oral and written communication in academic discourse in mother and foreign language. As Ferreira and Lousada (2017) observe, in Brazil the teaching of academic writing is deficient, and the teaching of reading, writing and scientific methodology can be more constant in Linguistics and Literature courses than in other courses. However, they warn that the teaching of the writing skill unrelated to the disciplines of the curriculum still prevails.

As Ferreira and Lousada (2017) point out students arrive at their graduate course with writing experience only in textual genres linked to standardized tests, like vestibular exams and, consequently, are not familiar with the specificities of academic discourse. For the authors, the teaching of writing in elementary and secondary school reflects the notion of skill according to Street (1984), for writing appears decontextualized and, therefore, presented as a neutral and universal skill, supposedly meeting the requirements of the academic sphere. They conclude that in this way the teaching of writing at school sphere equals the teaching of writing in the academic sphere, since it does not consider the social practices in which it originates.

Moreover, Ferreira and Lousada (2017) point out that most graduate courses in higher education do not dedicate to the teaching of writing, whether in mother or foreign language. With regard to the latter, the authors highlight that the knowledge of a foreign language for admission to graduate school is limited to reading texts; however, they consider it is also necessary to teach how to write properly, due to the growing opportunities for student exchange with foreign institutions provided by the university internationalization.

For these reasons, Ferreira and Lousada (2017) emphasize the need to institute a policy of teaching academic writing. Untill then, in response to these demands, they created and coordinate the Academic Literacy Laboratory of the University of São Paulo, based on the following vision of literacy:

> The critical socialization of the use of language in higher education to read, write or speak aimed at the production, dissemination and support of the production of academic knowledge according to the linguistic, generic and social conventions of discursive communities on which general literacy skills are based. This critical socialization aims to lead the freshmen to a stage of negotiation of these conventions with the discursive community or even be agents of their creation. As observed the definition seeks to cover the generalist views as a basis for the construction of a specific vision and aims to contemplate both the formal and social aspects in a critical view of socialization. The general skills necessary for academic literacy would be to expose, argue, summarize, seek, hierarchize and relate information, value reasoning, debate (CARLINO, 2013), rhetorical awareness of the rules of the discursive community (HYLAND, 2002, 2009; SWALES and FEAK, 2004), persuasion about the validity of arguments, negotiation of knowledge, values (HEWINGS, 2001). Through this list of skills one can perceive the importance of academic literacy and how their teaching can be facilitated by the teaching of literacy in regular school. (Ferreira, 2015, p. 18-19 as quoted in Ferreira & Lousada, 2017, p. 128)

In other words, the concept of literacy advocated by the authors covers several aspects at the same time, that is, formal, social and ideological. This is because they understand that in this way it will be possible to meet the specificities of academic discourse and outline pedagogical and political actions that encourage the promotion of academic literacy at university.

In conclusion, as previously stated, the dialogical, polyphonic and situated nature of discursive genres underpin the notion of literacy, understood as the social practice of reading and writing. As demonstrated by the authors approached in this section, a conception of reading and writing as dissociated from context of use still prevails in primary and higher education. Nevertheless, the fruitful dialogue among researchers from areas such as Applied Linguistics, Education and Scientific Dissemination and Science Teaching defends the conception of literacy of a socially contextualized, ideological nature.

Final considerations

This paper aimed to discuss the notion of functional literacy, scientific literacy and digital literacy as proposed by Atta and Hetkowski (2019). These concepts were analysed in the light of autonomous and ideological model of literacy proposed by Street (1984, 2014 and 2017). I came to the conclusion that the epistemological basis on which those notions rely stands for the autonomous literacy model, that is, emphasizing language as individual, cognitive, neutral and universal, detached form social context, and deprived of its dialogical, polyphonic, and discursive nature. I understand that such a conception of language does not conform to the formative objectives proposed by Atta and Hetkowski (2019) for GEOTEC´s young researchers. This conclusion derives from the following arguments:

> 1. For Street (1984, 2014, 2017) there exists the consensus among academics and researchers that study literacy that the autonomous model, based on which many teaching programs define their curricula, does not constitute an appropriate intellectual tool. This is because it does not encompass the cultural diversity of reading and writing practices or design the plan these practices require, more in accordance with the ideological model.
> 2. Similarly, the notion of "prior and proficient domain" (Atta & Hetkowski, 2019, p.112) and "digital literacy" (Romani, 2012, p. 113, as cited in Atta & Hetkowski, 2019) also rely

> on an autonomous, neutral and universal notion of literacy as a kit of competencies and abilities that supposedly introduce who possesses them into the academic world. I understand that this model of literacy could little contribute to the formation of young critical, reflective and ethical researchers.
> 3. With reference to the distinction between (linguistic or scientific) "alphabetization" and on the other hand, (linguistic or scientific) "literacy", it reveals the confrontation between two struggling ideologies: one dominant, educated and prestigious and another traditional and popular and marginalized. These conceptions proved to be in accordance with the autonomous and the ideological model of literacy (Street 1984, 2014, 2017).

As a conclusion, the conception of literacy in accordance to the ideological model (Street, 1984, 2014, 2017) implies literacy understood as part of social practice, based on socially constructed epistemological principles and culturally sensitive. This perspective will certainly stimulate in young researchers the ability to problematize ideologies from which literacy practices stem and to question assumptions and naturalizations, in attention to the voices and values of discourses circulating in academia/scientific community.

I believe in educational programs characterized for their situated and contextualized nature. However, whatever the chosen path, this should be a responsible educational choice that is responsive to the life and integrity of the students, because it is through this act that the teacher has the possibility to redefine and transform their reality. There is no epistemological choice; there is no decision that does not imply an ideological position.

Therefore, I defend literacies as situated, democratic and humanized pedagogical practices capable of providing both the appropriation of learning processes and the development of students' linguistic/discursive consciousness. Thus, they will be able to assume the status of subjects of discourse, responsible and responsive, in Bakhtinian terms, for the exercise of citizenship, ethics and critical reflection in order to promote changes in their social context.

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About the Authors

CECILIA AGUIRRE
ORCID: http://orcid.org/0000-0002-0562-9452
Associate professor linked to the Spanish language area of the Federal University of Bahia. PhD in Letters, Concentration Area in Applied Linguistics (2004), by the Graduate Program in Letters and Linguistics of the Federal University of Bahia. He held a Doctoral Internship at the University of Buenos Aires with capes PDEE Scholarship (2003) and later Postdoctoral Internship at University of Buenos Aires, with a CAPES Scholarship (2009-2010), in the large area of Social Sciences and Humanities, with studies on Ethnopragmatics. Currently holds post-doctorate in the Graduate Program in Education and Contemporaneity of the State University of Bahia, as a member of the Research Group Geotechnologies, Education and Contemporaneity, with emphasis on (multi)literacies, digital games and teacher training. Leader of the Research Group Teaching and Learning Languages with Digital Technologies (UFBA/CNPq). Leader of the Study and Research Group in Pragmatics of Portuguese and Spanish (UFBA/ CNPq). Develops her work in the areas of Spanish Language Teaching with digital technologies, Sociocultural Pragmatics, Multiliteracies and Teacher Training.
E-mail: cga.ufba.2015@gmail.com

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