

The relationship between undergraduate students and the practice of writing scientific articles

ARTICLE

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Abstract

The writing of scientific articles plays a central role so that university students can develop their identities as academics and express themselves. This article presents qualitative research within the scope of a Degree in Pedagogy course and aims the elaboration of a scientific article for a mandatory course subject. Using the Double Instruction technique (Oddone; Ré; Briante, 2008), participants were encouraged to self-reflect and describe their process of producing a scientific article. We used content analysis and achieved three categories: 1) learning formal textual elements; 2) searching for textual references in article models; and finally 3) the willingness to participate in literacy practices within the academic community. As contribution of this work, it is possible to highlight reflections on the writing of a scientific article by students who are beginning to build an academic identity as writers.

Keywords: Academic genre. Writing. Literacy.

A relação de estudantes na graduação com a prática de escrita no gênero Artigo Científico

Resumo

A escrita de artigos científicos desempenha papel central para que estudantes universitários desenvolvam suas identidades como acadêmicos e consigam se expressar. Este artigo apresenta uma pesquisa qualitativa no âmbito de um curso de Licenciatura em Pedagogia e foca na produção do artigo científico em uma disciplina obrigatória do curso. Por meio da técnica de Instrução ao sócio (Oddone; Ré; Briante, 2008), os participantes foram instigados a autorrefletir e descrever o processo de produção de um artigo científico. Utilizamos a análise de conteúdo e obtivemos três categorias: 1) a aprendizagem de elementos formais do texto; 2) a busca de referência textual em modelos de artigo; e por último 3) o desejo de participação em práticas de letramento da comunidade acadêmica. Como contribuição deste trabalho, é possível destacar reflexões sobre a escrita de artigos científicos por estudantes que estão no início da construção de uma identidade acadêmica de escritor.

Palavras-chave: Gênero acadêmico. Escrita. Letramento.

1 Introduction

2 For Bakhtin (1997), interaction in the spheres of human communication is only possible through discursive genres, which are relatively stable enunciations that translate socially constructed ways of acting. This leads us to understand that mastering the language to interact in these spheres implies knowing how to use writing not only in the usual and proficient configuration of a genre, but above all in its social function, paying attention to its compositional construction, thematic content and style. Thus, there is an undeniable need to understand the social conventions of language as a system of representation, in order to meet the dimensions of genres. Such acquisitions, therefore, are engendered through the appropriation of a historically and culturally constructed *modus operandi* within the communication that certain discursive communities (Swales, 1990) produce and use writing as a social practice (Street, 2014).

The university, as one of these discursive communities, needs to build literacy practices and events that enable students to learn the genres that organize their communication. In this way, higher education students, especially those who have recently returned from basic education, can develop their identities and express themselves through writing. This is justified because, according to Bazerman (2018), in high school, for example, students have their knowledge controlled by the limits of the curriculum and assessments, which, in many cases, basically reproduce the content of the textbooks used. Unlike this restricted world of knowledge in school programs, writing at university “challenges students to innovate meanings and plans in order to begin to form the identities on which they will build careers” (Bazerman, 2018, p. 116). Therefore, the construction of a professional identity, permeated by academic writing, is a challenge for the teaching of writing.

In this context in which the university presents itself, the textual-discursive genre of the scientific article takes on relevance, as it is currently the means by which the

academic discursive community has most disseminated its intellectual production. On this path, undergraduate students and/or beginning researchers need to assert themselves as producers of knowledge, and are challenged to form identities and build their professional careers using writing. For reasons ranging from the demand for time, financial investment and work between collaborators (Matte; Araújo, 2012), the scientific article has surpassed in importance and prestige other types of publications commonly identified in the academic community.

Given the undeniable relevance of writing scientific articles within the academic community as a means of learning content and an important tool for building the identity of young researchers, the mediating role of all teachers in teaching the different types of academic literacy is paramount.

Even if students arrive at higher education knowing how to read and write proficiently, in terms of their knowledge of the alphabetic writing system, which is the result of approximately 12 years of schooling in primary education, we understand that literacy practices and events are situated (Street, 1984; 2014). For this reason, it is necessary for the university, through the curriculum, courses and teachers, to promote the continuity of this process of teaching the writing of academic genres, such as the scientific article, as already mentioned in this study. However, we need to understand: how are students appropriating this practice and what meanings do they attribute to it?

In view of this brief introduction to the subject, we have chosen as our objective for this work to analyze the ways in which students on an undergraduate course in Pedagogy appropriate the practice of writing a scientific article. By discussing some aspects of this process, we hope to understand more about how the relationship between higher education students and academic writing has been constructed and, above all, to highlight the importance of the mediating role of university teachers in this construction.

2 The scientific article genre and young researchers' relationship with writing

Writing a scientific article is an activity inherent to the university community, which uses this genre of language to organize part of its communication. That said, in this study we have incorporated the definition of genre provided by Bazerman, who defines genres as “ways of doing things - and as such they embody what must be done, bearing marks of the time and place in which these things are done, as well as the motives and actions carried out in these places” (Bazerman, 2015, p. 35). In other words, we agree with the author that the recognition of a genre is essentially based on the social function it performs at the time it is produced.

We also have to consider the aspects pointed out by Bakhtin (1997) in this classificatory recognition: thematic content, compositional plan and style. While the first relates to the subject matter dealt with by the author of the text, the second relates to the formal structure of the text, and the third concerns the linguistic and grammatical aspects that characterize the specificities of each sphere of communication. Although all of these aspects must be taken into account, the social function, in time and existential space, is what most strongly defines the concept of genre, which is what we are particularly interested in discussing.

To exemplify the social function of the genre, let's take the example of a song that deals, in its content, with the ingredients for a feijoada recipe. It doesn't stop being a song because it presents this theme. In other words, it doesn't lose its social function because, in the context of use, the function of the list of ingredients is to compose the lyrics of a melody, not to serve as a cooking recipe. Thus, the content, form and style may even vary when composing a given genre, but they do not allow a song to cease to be what it is, as in the example given, just because it contains content from another genre. Thus, the transitivity between the recipe genre and the lyrics genre implies recognition of the function pointed out by Bazerman (2015).

The social function of the scientific article genre involves communicating partial or final results of scientific research. Articles are low-cost publications and are widely circulated within the academic community, through academic journals and magazines (Matte; Araújo, 2012). In terms of form and style, there are some textual variations, always

according to the area of knowledge in which the article is produced, as well as the fact that it has to meet the specific standards of the publication media, such as: scientific events, online journals, books, etc. Therefore, even though this genre has a typified form, containing an introduction, theoretical basis, methods, results, conclusions and references, it can undergo, like the text of any genre, some changes to suit the various situations in which it circulates, without de-characterizing it as such.

Since the act of writing represents “a particular relationship with writing, with its learning and with its different uses” in social spaces (Barré-De Miniac, 2006, p. 204), we believe that the learning of academic writing by undergraduates should be a topic of interest for researchers and university teachers from the most different areas or disciplines. In other words, a relationship that is not confined solely to the particularity that the subject manifests when writing, as stated by the aforementioned author, needs to be exercised in different contexts. Although the relationship with writing is a singular experience, the young apprentice academic writer needs to recognize that “*knowing how to write for your peers is the main way to gain recognition in your field*”. (Matte; Araújo, 2012, p. 107, italics in original).

On the other hand, for this to become feasible for those starting out, we cannot ignore the fact that the writing process is difficult and exhausting. In this sense, the support of teachers, as more experienced partners, is essential for undergraduate students to learn the typifications that should characterize their texts, such as those that identify with the scientific article genre. This premise is reinforced by the words of Matte and Araújo (2012, p. 170), who state that:

mastering writing requires practice, a lot of reading of texts in the field and knowledge of formal language, which can come from experience or be learned in specific subjects. [...]. It is through writing that the young researcher is able to show proficiency in the area in terms of knowledge of the advances already made and recognized by other researchers, in terms of the history of knowledge in the specific field in which they work, as well as in terms of the specific knowledge of the area as a coherent epistemological construct.

This is in line with the thinking of the aforementioned authors McLeod and Maimon (2000, p. 579), who describe the role of the teacher “as the professional who is already part

of the conversation [of their] community, [whose task is to help] the novice, the student, to enter that conversation”. In other words, it's about helping students develop their relationship with academic writing, so that it becomes a less strenuous task, as we mentioned above. In other words, it is desirable that, under the influence mediated by the didactic action of teachers, students can “familiarize themselves with the world of knowledge laid out in existing texts and [...] discover how to represent that knowledge, accept it, use it for their own benefit and, perhaps, have something to say about it” (Bazerman, 2013, p. 195). This is a huge challenge for teachers!

3 Methodology

We opted for the qualitative research approach because it allows the researcher to enter into the individual experience of each subject, in their natural contexts, observing the phenomenon being analyzed. From this perspective, the research is in-depth and attentive to many nuances, valuing the subjectivity of those who deal with the processes being analyzed. This is because, among other characteristics, reflection tends to focus more on the processes that circumscribe the object of study than on the product (Bogdan; Biklen, 1994). Therefore, the choice of this approach is justified by our attempt to understand the specificities of the relationship between novice researchers and academic writing, particularly in the scientific article genre.

In view of the above, we adopted a data construction technique called “Double Instruction”, devised by Oddone, Ré and Briante (2008). This technique is widely used in the field of occupational psychology during worker training seminars to identify how the worker carries out a certain activity inherent to the job. We understood that this technique would be appropriate for awakening self-reflection in participants, thinking about “how to do it” and motivations “about doing it”, in the context of producing a scientific article.

For this research, the activity carried out by the participants was to instruct a double on how to proceed with the task of writing a scientific article. We believe that, when they find themselves in the situation of instructing a double to carry out this work, the subject

externalizes their mental models (Krapas *et al.*, 1998), which allow the researcher to get to know the “ways of doing”, as well as the knowledge and conceptions involved in self-reflection and thinking about this activity. We thus realized that the externalization of mental models, from the perspective of those who teach, implies a unique requirement: a process of elaboration aimed at highlighting what the subject considers to be the most important in terms of content.

In order to prepare the instrument, we followed the methodological guidelines which stipulate that the research participant should set a specific time, date, day and occasion when the double will replace them (Batista; Rabelo, 2013). With this, we created an imaginary situation, delimited by some pre-established conditions. Firstly, in relation to *the time and date*, the activity was designed to be carried out during a school semester, without a specific date, as we understood that this activity would involve multiple tasks for the complete preparation of the article. As for the *specific occasion*, we used the environment of the subject “Educational Research I”, offered in the Pedagogy course at the Faculty of Education (Faced) of the Federal University of Ceará (UFC), between September and December 2020. This choice is due to the fact that this study is part of a broader investigation, which is the doctoral research of one of the authors of this text, conducted in the same context. The students enrolled in this subject, which is offered every semester, were the subjects of the research. Finally, the *specific imaginary activity* was the writing of a scientific article, a requirement of the course.

With this information in mind, we created the following situation:

Suppose that I looked a lot like you, that is, that I was physically identical to you, and that you would therefore choose me to replace you for a few weeks in the next semester of the course, when there will be a writing activity to do. This activity involves writing a scientific article, which will be requested once again by the teachers, and will be worth your approval in the subject Educational Research I. What information should I know about writing this text so that no one notices it is missing? How did you learn about writing this genre of academic text? Note: there is no word limit for your answer, as you must instruct your double carefully.

With regard to the specific activity, the students invited to take part in the research were developing and producing the writing of a scientific article during the semester, under the guidance of the subject teacher. It is important to note that the dynamics of the subject's organization and the way the teacher carried out the tasks during the semester allowed the article to be written collectively, in groups of up to three participants. The instrument was applied in the last month of the semester online using the Google Forms platform and sent to the students in the class via their e-mail addresses. We chose this period because we understood that, at that stage, the participants had already finished writing the article, and were therefore supposed to be more adept at teaching the double how to carry out this task.

The form sent out consisted of two online pages. In the first part, we presented the Informed Consent Form (ICF), along with the option to accept or refuse. In the second part, we included the wording of the instrument, with lines below so that participants could respond to the situation, with no set word limit for the answer. The email announcing the research, asking for the collaboration of the students in the class, was sent weekly, totaling 141 messages over 30 days. In the end, we received 16 responses from the students, three of whom did not sign the ICF. Thus, we were able to validate 13 responses from the participants who responded to the email and signed the online ICF.

Once we had the participants' answers, we went on to analyze the data, which is presented and discussed below. This phase of the research was carried out using the content analysis technique, outlined in three stages: description, categorization and interpretation of the data (Franco, 2005). Initially, we identified thematic blocks mentioned by the students, referred to here by fictitious names. As we have already mentioned, the choice of this technique is justified by the fact that we were interested in analyzing the content of the messages of the double instruction with a focus on the process of producing the scientific article genre and the meanings attributed by the students to that social practice of writing in that context.

In the course of the analysis, we constructed three thematic blocks based on the empirical immersion in the students' responses to the double instruction, namely: 1)

learning the formal elements of the text; 2) the search for textual reference in article models; and 3) the desire to participate in literacy practices in the academic community. Therefore, following on from the other two stages of the technique, we will now describe and interpret the research data in detail, addressing the three categories presented above in a linear fashion.

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4 Learning the formal elements of the text

In this first analytical category, we identified a group of skills evoked by the students as a strategy for appropriating academic writing, namely: mastery of vocabulary, appropriateness of language and use of models, as mentioned in the following passages:

The most important thing is not to use old words, derived from Greek, Latin... those things never, but you can't be too weak either. Diverse vocabulary, lots of different connectives, but nothing erudite. I learned to write this way in the third year, writing essays for ENEM and then adapting some things according to the models I was taught at university and also by looking at the academic texts I read, how the author expresses himself, how the text is organized (Beatriz).

First of all, you should write in the correct language. Don't use the first person singular and pay close attention to the clarity of the information you want to convey. After finishing each idea, re-read it to see if there is any unnecessary or confusing information. When changing paragraphs, make an effort to use cohesive links so that the text is "stitched together" (Joana).

The perceptions of Beatriz and Joana represent the understanding of all the students. They emphasize formal aspects as dominant in scientific article writing on two levels. The first level focuses on the grammatical dimension of the form. This initially highlights the need to have knowledge of current vocabulary. However, this is not only seductive because of what is most obvious in terms of vocabulary: its modern character, as they are able to be critical in identifying some of the formalities of academic writing, for example, Latin or erudite terms, as unnecessary.

In the same vein, we can see that their knowledge is refined to the point of mentioning the importance of using connectives. Although it is not made explicit in their speeches, it is not a stretch to say that they understand the consequences of their use in

organizing the ideas of the text. The justifications given by the students so far are consistent with the social context in which they use writing, derived from their experience in primary education. This learning is summarized by the quote that the learning of such knowledge was due to the process of learning techniques to write a good essay for the National High School Exam (ENEM).

For us, a second, broader level of formal appropriation of writing is achieved through immersion in the university environment. Models of dissertations, theses, reviews and the scientific article itself exemplify different genres of writing taught at university. However, the demands of academic writing, as might be expected, bring with them a cultural demand that transcends the merely grammatical aspect highlighted above. Although the knowledge acquired at school has been transposed and adapted to this second formative space, it is the uniqueness of the formal aspect, introduced by the use of models, that now stands out.

In fact, we can't assume that mentioning the term "model" implies a deep understanding of this concept, but it is certain that the students recognize it as a formal requirement of university culture and understand how it is appropriated from different perspectives. Thus, it is not only by mastering the structural elements of the model of a given genre, but also by perceiving them empirically in the academic texts they are now obliged to read. In other words, they know how to identify elements such as contextualization, problematization, objectives, methodology and theoretical framework in a given genre they read, such as an article. Let's move on to analyzing these excerpts.

For example, we are convinced that the transposition mentioned in the above statements is modest in order to produce a good essay or academic writing, as the students believe. It is more feasible to argue that understanding the social nature of written language in this cultural space, as emphasized by the canons of academic literacy agencies, involves specific knowledge that makes the transposition of practices from the school environment to the university environment a more circuitous process. In other words, literacy practices and events differ greatly between these two spaces. Therefore, we believe that it is not possible for the acquisition of a series of techniques, limited to the grammatical domain or

even a standard model, in the form of a template, for example, to deal with the complexity of the literacy process.

For us, this is a valid representation as a starting point, as they say, but it is not quite in line with the demands of academic literacy advocated by various authors cited throughout this text. Finally, although the idea of trying to extend the knowledge that is convenient to the school writing culture to the university context is forceful, the students show that they understand some of the restrictions imposed there. In other words, we can say that when they arrive at university, faced with new discursive genres, the students adapt their school writing style to higher education, developing strategies to better interact with the demands of academic writing. To do this, they read academic genres to get to know the structure, form and style of this type of writing. However, their statements make it clear that, in the academic environment, there is also the presentation of previously prepared models.

On the other hand, the use of models for well-structured genres, such as the scientific article, and previously defined in the academic environment, exposes a problem that was announced: the demand for students to appropriate the texts that circulate in this universe. However, on the other hand, without guidance from teachers on how to conduct this process, we would have to believe in a self-taught approach common to all students who arrive there, which seems to us to be an unlikely hypothesis. We hypothesize that there is still a deficiency in the teaching process with a view to increasing students' academic literacy. Consequently, many university students do not know how to identify and express the typical marks of a scientific article.

We can't ignore the fact that the models presented in scientific methodology textbooks can help students understand the style and format of academic genres. However, reducing the complexity of academic writing to a series of rules, inherent to the ontological characteristics of the model, can be counterproductive to understanding them as a social construction governed by very specific functions. Thus, we argue that teaching support can broaden the notion of model by circumscribing specificity of scope, establishing relationships and specifying functions, as Halloun (2006) warned us.

Of course, there is no single model for interacting with and appropriating writing, but rather a diverse set inherent to sociodiscursive contexts. Furthermore, as society changes, new forms of writing and epistemological challenges emerge, materialized by discourse genres. Therefore, we cannot homogenize the social practices of using writing and their reference models to the point of mischaracterizing them. The studies discussed below are sensitive to this point.

Lea and Street (1998; 2014), when looking at issues related to student literacy at university, outlined three overlapping perspectives in relation to the models: the study skills model, the academic socialization model and the academic literacies model.

The first, *the study skills* model, sees writing and literacy as an individual and cognitive skill. [...] The second, called *academic socialization*, has to do with the acculturation of students to discourses and genres based on themes and disciplines. [...] it assumes that disciplinary discourses and genres are relatively stable and that once students have mastered and understood the basic rules of a particular academic discourse, they are able to reproduce it without problems. The third model, *academic literacies*, has to do with the production of meaning, identity, power and authority; it foregrounds the institutional nature of what counts as knowledge in any particular academic context (Lea; Street, 2014, p. 479).

Having presented these models, the authors point out that the first two “have guided the development of curricula, teaching practices and research” (Lea; Street, 2014, p. 479). We identified these models in our work, as exemplified and analyzed through the speech of student Beatriz. Once again, drawing on the thinking of Svoboda and Passmore (2011), we understand the dependence on access to multiple models in order to make better use of the understanding they allow. University culture is certainly a privileged space to reinforce this thesis.

Not recognizing this aspect of the representations contained in the models, the ontological partiality and their different functions, ends up circumscribing the literacy approach insensitive to the diversity of social practices of language use, i.e. writing is not historically situated knowledge. As we saw in Beatriz's speech, there was a belief that the possession of cognitive and individual skills could be transferred to any social context.

Another consequence of this restriction of the study skills model is that it is only up to the subject to master the conventions and uses of reading and writing at university. In

other words, they are solely responsible for their success or failure in carrying out these practices, thus ignoring the influence of other factors, such as those indicated by the models of socialization and academic literacy. Finally, in this category, we observed that the students Beatriz and Joana describe their process of learning to write by highlighting the prevalence of normative criteria, by pointing to mastery of vocabulary and syntax, close to the appropriation of the study skills model proposed by Lea and Street (2014).

However, writing learning actions mediated by more sophisticated models, such as academic socialization, appear timidly when the students refer to the very concept of a model as a tool, a template, corroborated by the idea that the article must follow a previously formulated model. However, although this scope is legitimate because it involves the students in the process of acculturating to a delineated practice typical of academic writing, it is not enough to frame the article in its social dimension through the genre of discourse.

In other words, the students place greater emphasis on knowledge of the cultured norm as an indicator of appropriation of academic writing and on the idea that the article should follow a previously formulated model, thus neglecting the social dimension of language and the genre of discourse. In other words, we believe that the presence of aspects that define the third model, that of *academic literacy*, is tenuous. Certainly, this last model requires greater sophistication, thus supporting the thesis that teacher support is fundamental for students to be able to fully appropriate it.

5 Searching for textual references in article templates

In this second point of the analysis, the students' concern with form, to the detriment of content, was the central aspect that emerged in their notes on how to write a scientific article. We analyzed this aspect in the previous topic, highlighting, above all, its unfolding as a consequence of the students' trajectory in two educational spaces: basic education and higher education. Now, we are moving away from this primary concern of emphasizing the analysis based on the imbrications between these educational cultures,

and we are underlining the unique influence of university education. However, we continue to analyze the knowledge appropriated by students through the literacy models mentioned above as a theoretical reference.

We were not surprised to identify this formal aspect in the empirical data provided by the students, since hypothetically we already knew that the last two models proposed by Lea and Street (2014), *academic socialization* and *academic literacies*, configure more complex types of appropriation of knowledge about writing. In other words, students are more desensitized to assimilating that the writing process implies capturing a sense of belonging and acculturation to a given culture, while at the same time requiring an understanding of how it makes social use of this practice.

In turn, the prospect of limiting knowledge of academic writing to mastery of the rules prescribed by the Brazilian Association of Technical Standards (ABNT) is remembered with detail and vehemence in the academic space, as student Clara demonstrates below:

A scientific article should be written in clear, formal language and following the norms of the Portuguese language. The formatting should be Times New Roman, size 11, 1.5 spacing and the text should be single-spaced. It is very important that there are no copies or plagiarisms, so quotations should be referenced and if they exceed 3 lines they should be spaced 4 cm apart and the font should be reduced to size 8. The cover should contain, in this order, the UFC emblem, the name of the university and faculty, the name of the subject, the name of the teacher, and my name in the middle, the title of the work and the date at the end of the page. In addition, it is very important to be well-founded, so it is necessary to read at least two texts on the subject. If you have any doubts, consult the ABNT standards, especially for citations. And at the end of the text there should be the references used throughout the text (Clara).

Our second hypothesis about these results is that the students' behavior reflects the way writing is usually taught at university, which focuses on formal aspects. Having said that, we believe that this practice is spearheaded by the lecturers themselves, who generally place the responsibility for teaching academic reading and writing on the scientific methodology teacher. In basic education, as is well known, this burden was generally attributed to the Portuguese language teacher, as analyzed by Neves *et al.* (2011). In both cases, this stance ignores the problem of writing as a demand for different forms of

knowledge and institutional pedagogical action itself. Furthermore, it also reveals how *autonomous literacy* (Street, 2014) is grounded in higher education.

However, in order to understand the call addressed to teachers and educational institutions, we need to shed light on what Lillis (1999) calls the *institutional practice of mystery*, i.e. the environment in which students don't understand what their teachers are saying, nor the reasons behind the syllabus and class dynamics in the subjects taught.

If we agree with Perrenoud *et al.* (2002) that there is no escaping ideological demarcation when it comes to teacher training aimed at consolidating democratic school practices, we have to deny neutrality when we talk about the appropriation of written language by students during the teaching and learning process. Therefore, we cannot disregard the social, cultural and historical aspects involved in the acquisition and practice of this knowledge.

Thus, it is not defensible for the teaching of this knowledge to be limited to the exposition of a series of technical norms, such as those prescribed by the ABNT, in the context of the omnipotence credited to the scientific methodology teacher, or by the desirable collective of teachers, as advocated by Neves *et al.* (2011). The academic context, as a literacy agency, requires an understanding of a set of elements that materialize writing in this environment, which is different from that learned at school. For us, these elements require, among other things, systematic and reflective teaching, plausible in a collective and institutional environment. Teaching that is explicit about how knowledge is organized and used.

However, what we see in the teachers' actions is more akin to an *institutional practice of mystery*, which leaves many of the cognitive and social conditions for teaching writing tacit. From this perspective, the academic literacy of these students can encounter many barriers, which can inadvertently be attributed to the cognitive, when they seem closer to the curricular organization. The *institutional practice of mystery* in the context of the production of discursive genres, as described by Lillis (1999), is also based on the assumption that knowledge about writing is easy to acquire. Therefore, it is believed that

simple immersion in the daily life of higher education would provide students with the conditions to use these skills.

As a result, teachers do not realize that it is also their responsibility to create elements for learning this literacy, since students do not have sufficient skills to put into action a writing practice that requires more than technical mastery. Therefore, under the influence of the *institutional practice of mystery*, it is assumed that they have already mastered all the codes of writing, and it is no longer up to the teacher to teach them.

To sum up Clara's account, we can conclude that almost all of her speech leans towards the study skills model. This aspect can be seen when the student explains how she uses her knowledge of the cultured norm to write a scientific article. In this way, the structural aspect of language predominates, with emphasis on the correct use of the cultured norm, to the detriment of its social function. However, especially in the last few sentences, it is possible to identify the appropriation of the practice of writing mobilized not strictly by individual and cognitive skills, but by traces of academic socialization.

By stating that writing must be grounded, we understand that the individual is involved in a process of acculturation, as he identifies that his writing must be in communion with a practice that is social. The idea of referentiality in the last sentence also reinforces this argument. Up to this point in the analysis, what was most noticeable was that students Beatriz, Joana and Clara reported the possibility of adapting and creating strategies for acquiring how to write a scientific article at university based on the appropriation of structural aspects of the text. This process involves organizational composition of a linguistic nature, which is based on knowing how to satisfactorily order the cultured norm, with emphasis on the correct spelling of words, making good use of spelling, with emphasis on the good use of punctuation rules, as well as knowing how to manage the appropriate choice of words to compose sentences and clauses, in other words, knowing the specificities of syntactics and semantics.

These characteristics are important points of the knowledge mobilized during writing. However, what we are defending is the need to recognize, in this practice, a greater emphasis on reflective construction and the social function of the text, objectives that are

more complex and supported by models of academic socialization and literacy. These strategies are mostly linked to the literacy models that Lea and Street (1998; 2014) have called the study skills model and the academic socialization model.

6 The desire to participate in literacy practices in the academic community

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The characteristics of the “academic literacies” model described by Lea and Street (2014) take into account writing as a social practice permeated by relations of power and identity. This model subsumes the two previously mentioned models of study skills and academic socialization. In other words, the academic literacy model is the one that incorporates, in its ontological effort to represent academic writing at university, functions other than those already indicated. Thus, the great contribution of the academic literacies model is that, “rather than highlighting students’ *deficits*, the academic literacies model approach foregrounds the variety and specificity of institutional practices and students’ struggle to make sense of these practices” (Lea; Street, 2014, p. 491).

It is a model with an expanded scope, as it seeks to circumscribe: technical mastery, the process of acculturation and the social function of writing. As expected, we observed a still timid inclination towards this more complex model, as we see in student Hélio's speech:

The process of academic writing isn't that easy, so I'm trying to learn through a few strategies: studying, reading other articles and talking to colleagues and my advisor, where I've done some writing and asked others to analyze it, then checking the collaborators' observations and rewriting the text. This process is constant, as there is always something to improve in a text, especially an academic one (Hélio).

I start by reading the basic texts, look for other texts to complement them and mark the parts that seem most important to me. From these highlighted parts, I try to write down what I understand about the subject, trying to relate the points to each other (Janete).

Here we see that students Hélio and Janete understand writing as an interactive process (Oliveira, 2010), in which the stages also involve turning to peers in the academic community: teachers, colleagues, supervisors and articles already published by

researchers recognized by the community. They identify agents who can contribute to their writing and rewriting. We therefore assume that they may be more sensitive to perceiving writing as a human construction whose appropriation goes beyond mastering techniques alone.

In this way, the behavior reported by Hélio and Janete indicates that they understand the writing of a scientific article as a collective construction, involving complex knowledge. For this reason, they seek out various appropriation strategies, such as reading articles that have already been published, as part of the process of acculturation. In other words, they seek familiarity with academic style in an empirical way, and not just by reading technical standards, as demonstrated by previous students. As we have already mentioned, the discursive purpose of this genre appears timidly in our findings; we saw this in student Hélio's comment that he socializes his texts with his peers.

We also observed among the participants a feeling of belonging to the academic community, identifying themselves as writers by showing, in their own words, signs of typical experienced-alike behavior, in other words, they feel they belong to the community to the point of realizing that they have already produced other academic productions, and therefore define themselves as writers, specifically when it comes to writing articles. This was demonstrated by around 80% of the students.

*As you can see, **this double would have great difficulty in “plagiarizing” me, because I am a true copy of my teachers** and they are the example of what I want to be when I grow up (in academic writing), I am in a constant process of maturing and building my knowledge (José).*

*The article is a type of academic text for scientific dissemination, it's important to be objective and make it clear what kind of **results or progress you want to share**, objectivity is essential, [...] in it you should **point out what your study has solved or reflected on that is most important**, pointing out whether you have achieved the initial objectives, you can also **highlight the need for some other study** that can complement (Fabiana).*

*Don't forget to put the references at the end of the article, because you have to **give credit to those who did the research before you** and thus helped to develop the article. And that's it. **I learned how to write this way** in scientific methodology (Rute).*

In the excerpts above, we can see that José says it is difficult for his double to imitate his academic writing, as he is a copy of his teachers, equaling them in terms of writing ability. Fabiana, as well as referring to the technical aspects of the article, also offers guidance on the social role of the article within the academic community, such as sharing and disseminating research results, pointing out issues that have been elucidated and indicating the need for further studies. In the same vein, Rute advises about mentioning previous studies and “giving credit” to previous researchers, stating that she learned to write this way in a specific discipline. In this way, she recognizes herself as a writer with the ability to write because she has already learned and knows exactly where she learned it.

In this way, we can say that the students recognize that writing is a practice embedded in a social context and that, for this reason, writing is a process of reflection supported by a theoretical framework and the product of cultural accumulation among the members of a community.

Therefore, the student's relationship with writing is built on a set of relationships. From the perspective of the “relationship with knowledge” (Charlot, 2000), every relationship is a relationship of meaning. And there is only meaning because there is desire. This desire, mentioned by Charlot, is understood from a psychoanalytical and anthropological perspective, because, as an unfinished subject living in a society permeated by cultural practices, this individual wishes to participate fully in these practices. In this case, we are referring to university literacy practices. In this way, by desiring this participation, students produce meaning, which drives them towards learning.

The desire for full participation in the academic community's literacy practices is evident in the words of students Janete and Hélio, when they mention their attempts to read other articles and texts, and to talk to colleagues and teachers about their writing. Given their behavior, we can infer that they are interested in finding ways to engage with the disciplinary culture to which they belong.

Bazerman (2020, p. 93) also helps us to think about the meaning attributed to writing:

Forms of writing are historical phenomena - created, recognized, mobilized and strengthened within the mind of each writer and reader at specific socio-historical moments, but transmitted in the accumulation of texts. The accumulated and socially contextualized textual experience increases the formal repertoire and procedural command of each writer and reader.

20 The analysis of writing as a social experience and practice, as advocated by Bazerman (2020) above, is also observed in Street (1984), when he analyzes the ideological literacy model. He sees writing as knowledge that is socially shaped by history and culture, and which therefore interferes in the organization and development of a society by establishing power relations. In this sense, being skilled in the use of this knowledge can mean being able to transform your reality by developing a more critical and reflective eye to understand problems that interfere in the social context in which you are inserted.

We also observed that the students present elements that dialog with the ideological model of literacy described by Lea and Street (2014). It is clear from their speeches that writing is not a ready-made model; it is not a matter of writing an article using a previously prepared formula that fits in anywhere, without reflecting on the purpose and communicative purpose of this knowledge. Thus, its appropriate use must correspond to the social context in which it is required, because for different social contexts, there will be different ways of making social uses of language.

For students, knowing how to write an article is related to the social function of this genre, its social purpose and the contribution it will make to their peers. The students understand that in order to learn how to write an article, they need to read, talk to more experienced colleagues and revise their text, unlike the idea of using a previously defined model, a formula that disregards the social function of language. In this way, students Hélio and Janete identify various power relations involved in the process of writing an article, in other words, they identify the writer as dependent on a network of collaborators and superiors who exercise power relations. In other words, there are those who correct and guide the authors, as well as articles already published by more experienced researchers who serve as a reference for their production.

7 Conclusions

We developed an analysis of the knowledge that undergraduate Pedagogy students have about the process of writing a scientific article, in the context of the subject Educational Research, offered in the fifth semester. We based our analysis on the data obtained by means of *Double Instruction*, based on the studies by Lea and Street (2014), who offer a theoretical framework outlined by three models, through which it is possible to understand the teaching of writing at university beyond the instrumental perspective, which is commonly circumscribed by teachers and students in different training spaces.

With regard to the knowledge evoked by students when instructing their double on how to write a scientific article, we identified and discussed the predominance of technical skills. This emphasis falls essentially on the *cognitive skills* model and the *academic socialization* model. We can infer that, by invoking the distinct knowledge and skills inherent in writing a scientific article, the students have incorporated how to write a scientific article, so much so that they demonstrate these skills by giving their double detailed instructions and various guidelines.

Another highlight of these students' conceptions of writing is the perception of language as an end in itself, which can be transported from one context to another without any social, cultural or historical implications. On the other hand, we also recognize a less traditional understanding of this knowledge as a social practice of language use. The principle of this practice is to meet a socio-discursive objective that changes according to the social context in which it is required, such as disseminating the data from a scientific study in an article to the academic community. In addition, the empirical data analyzed leads us to infer that the most prominent meaning of the practice of writing articles by students is related to feeling part of the academic community as writers.

The contribution of this work to our peers, researchers and teachers of academic literacy and others interested in the subject, is the possibility of encouraging reflection on the pedagogical practices that are developed in the university context that work with writing, as well as reflecting on the writing of a scientific article by students and how to develop

teaching strategies. From a broad perspective, we can think about proposing curricular changes in undergraduate courses in Pedagogy, whether in the context of disciplines or in the activities of curricular components, with the understanding that academic literacy, more specifically academic writing, encompasses a transdisciplinary conception.

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