

Professional Literacy Instruction During the Undergraduate Years: Between the University and the Workplace

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Writing practices and the teaching of writing have become a key area of interest for various disciplines that have contributed to shaping this emerging field of study. This paper aims to present partial findings from a research project focused on writing practices within the field of industrial engineering. As part of the activities of the Reading and Writing Skills Development Program across the Undergraduate Years (PRO-DEAC) developed at a public university in Argentina, we examined the genres used in business contexts through surveys conducted with engineers. Additionally, we consulted students engaged in both academic and professional settings about the genres required in each domain. This approach allowed us to assess whether the curricula aligned with the writing competencies expected in students' professional lives. In contrast to previous studies conducted at universities in Spain and Chile, our findings indicate that, out of the thirty-three business-related genres identified, the university curriculum addresses 20 of them during the second half of the Industrial Engineering program. Furthermore, we have identified genres that require further description and inclusion in the pedagogical design of relevant courses.

Since the last decades of the 20th century, there has been a significant increase in research and proposals to develop what is often referred to as academic or disciplinary literacy instruction. Although the origins of the field are linked to the interest of addressing perceived writing difficulties among students from the so-called “new university publics,” recent research has acknowledged the specific ways in which language operates across different disciplines (Hyland, 2000, 2002).

This acknowledgement is in large part why institutions have developed instructional programs to support academic and disciplinary literacy (Carlino, 2002, 2003, among others), and also why a linguistic perspective has become a central or integral part of how reading and writing skills are taught in higher education. In this respect, linguists and scholars of language can contribute to discussions of the genres or text types that students should master during their undergraduate studies, as well as those relevant to the professional environments in which they will work after graduation. Furthermore, as linguists do not have access to the disciplinary and vocational spaces where professional writing is taking place, it is necessary to articulate the views of these disciplinary communities and their members in order to construct comprehensive genre descriptions that account for both contextual and linguistic features.

In this article, we review the main conceptualizations of literacy practices in higher education and present the preliminary results of an ongoing research project conducted by the Reading and Writing Skills Development Program across the Undergraduate Years (PRODEAC, for its acronym in Spanish), an institutional program at Universidad Nacional de General Sarmiento (UNGS). The research aims to identify and describe the genres circulating in the professional field of engineering. This information will help teachers and administrators devise pedagogic materials and adjust the writing assignments undergraduates should complete during their time in the Industrial Engineering program. The study's findings are expected to contribute to aligning the writing activities in the specialized phase of undergraduate education with those required in professional practice upon graduation.

In the paragraphs that follow, we review some concepts surrounding teaching reading and writing practices in higher education. We then present the methodological design of the research along with some preliminary findings. Our initial observations indicate that, although previous studies (Cassany & López, 2010; Parodi et al., 2010) suggest a disconnect between university writing practices and those required in professional settings, the differences between the professional genres assigned in the Industrial Engineering program at UNGS and those used in various companies by early-career professionals are not substantial. Nonetheless, our results suggest the need to implement some pedagogical adjustments and set the course for further research. To this end, in the final section of this paper we will present some reflections surrounding these two interconnected ideas.

Evolution of the Concept of *Alfabetización*

The establishment of a research field focused on university writing practices and their teaching (Lillis & Scott, 2007) has given rise to a great deal of

specific terminology. One of the terms coined has been *academic literacy instruction* (“alfabetización académica”). The various definitions of this concept reflect, on the one hand, different theoretical positions and, on the other, the evolution of approaches within the field. In the following section, we will address the differences and the changes in the conceptualization of this term.

Academic Literacy Instruction

An initial conceptualization of academic literacy associated the term with a set of skills, including reading and writing abilities, deemed essential for success in academic communities. This perspective is reflected in definitions such as those proposed by Hyland & Kamp-Lyons (2002) and Paula Carlino (2003), the latter having significant influence in Latin American contexts. According to Carlino, academic literacy can be defined as:

the set of ideas and strategies needed to take part in the discursive culture of disciplines, as well as in the activities of text production and analysis required for learning at the university level. It thus points to the language and thinking practices typical of the academic field. It also designates the process of becoming a member of a scientific and/or professional community, by having appropriated its established forms of reasoning as expressed through specific discourse conventions (Carlino, 2003, p. 410; our translation).

The definitions formulated in the first decade of the new millennium address a set of “necessary” knowledge—a kind of repertoire that students must acquire beforehand to effectively engage in a disciplinary culture. In this sense, Carlino’s definition of academic literacy can be framed within a pragmatic approach, based on skills and student-centeredness, as Carlino acknowledges in a later text (Carlino, 2013, p. 371).

Recently, Carlino proposed a reformulation of the concept, suggesting an important turn. She claims,

I suggest calling *academic literacy instruction* (“alfabetización académica”) the educational process that can or cannot occur to facilitate students’ access to different disciplinary written cultures. It is the dauntless effort to include students in the literate practices, the actions taken by the instructors, supported by the institutions, so that students learn how to present ideas, argue, summarize, search for information, organize and relate it, evaluate reasoning, engage in debate, etc., in accordance

with the conventions of each discipline. It entails two related objectives that need to be set apart. On the one hand, it aims to teach how to participate in the genres of a specific field of knowledge and, on the other, teach adequate studying practices that enable learning. The first involves training students to read and write as specialists do; whilst the latter is about teaching reading and writing to acquire the knowledge produced by experts (Carlino, 2013, p. 370; our translation).

This redefinition of the concept demonstrates a change in the focus of attention. Whereas the 2003 definition focused on the processes that students went through, in 2013, the definition centered on the role of the faculty and university. On the other hand, the activity that appears as paramount for the development of academic literacy is teaching.

Academic Literacies

The process of academic literacy instruction in higher education has also been addressed from other perspectives. The academic literacies model, or ACLITs (Lea & Street, 1998, 2006; Lillis, 2003, among others) understands literacy not as an individual, cognitive process that can be observed through “skills,” but a social, cultural, historical and institutional practice. Given this perspective, we can infer that academic literacy is neither universal nor univocal but diverse and socially situated. This recognition implies the existence of different approaches. Lea and Street (1998) distinguish three of them: study skills, academic socialization, and academic literacies. Among these, the first two are the most commonly adopted. The skill approach presupposes that writing is essentially a cognitive and individual phenomenon because it focuses on grammatical and lexical features, and builds up to the idea that these general skills are applicable to any compositional context. In contrast, the academic socialization model prioritizes the process of students’ enculturation into different disciplines through reading and writing practices the most commonly used genres, which are regarded as stable and unquestioned.

The two literacy models described above are characterized as monologic because pedagogical and institutional practices promote the reproduction of official disciplinary discourses (Lillis, 2003). For that reason, a third model was proposed, called *academic literacies*, which is not only concerned with language and knowledge in different disciplines but also with the established epistemology and the power relationships within each community, and the construction of the writer’s identity. This perspective adopts a complex,

dynamic (Lea & Street, 2006), critical, and dialogic view of literacies, while also recognizing their ideological nature (Lillis & Scott, 2007). It is directed toward challenging the established practices in order to show the existing heterogeneity and the diversity among the members of a community (Lillis, 2003).

According to Lea and Street (1998; 2006), the three literacy models are not mutually exclusive. Rather, the academic literacies model encompasses the previous two, but from a critical perspective, which is reflected in the use of the plural form to acknowledge the diversity of literacy practices present in academic institutions (Hamp-Lyons & Hyland, 2005; Lillis & Scott, 2007).

Disciplinary Literacy

Lately, the notion of disciplinary literacy has surged in popularity as an alternative concept.¹ It is an emergent pedagogical approach applied at the pre-college level that shares many of the same basic principles of academic literacies while introducing some modifications (López-Bonilla, 2013). Beyond emphasizing the role of reading and writing, disciplinary literacy focuses on two components: learning processes and different disciplinary practices, taking into account the tools and knowledge that students require to access the construction and transformation of disciplinary knowledge (Moje, 2007).

Thus, disciplinary literacy is not only concerned with teaching reading and writing practices. It also promotes students' participation in activities similar to those performed by disciplinary specialists in order to gain "deep learning" of the disciplinary knowledge and its epistemologies (López-Bonilla, 2013; Moje, 2007). In this sense, it seems to be a broader view than the definitions that relate literacy with reading and writing disciplinary texts. Following Ford and Forman (2006, p. 1), the concept entails a "turn towards practice," correlated with Lave and Wenger's (1991) notion of "participation in practice."

This turn is in line with Vijay Bhatia, a renowned specialist in the field of language for specific purposes. He has recently suggested that the study of disciplinary languages is entering a new phase, in which it is acknowledged that mastering the knowledge developed in a discipline and its discursive conventions would not suffice to become an active member of a professional community and, instead, requires participation in the professional practices

1 The term "literacidad," a translation from the English word "literacy," is frequently used as a synonym of "alfabetización." The same happens with other words such as "letrismo," "literacia," and "alfabetismo." According to Parodi, this terminological diversity "seems to point to the same phenomena" (2010, p. 11).

which constitute membership. However, Bhatia admits that this addition is not simple. Given that mainstream studies in the field have been mainly based on text description, recognizing the relevance of situated practices constitutes one of the most significant challenges for language specialists. It implies attending to other epistemological frameworks and adopting new research designs to understand why discourses are constructed in specific ways (Bhatia, 2008).

In summary, this overview of the various concepts developed to describe the teaching and learning processes of disciplinary reading and writing reveals multiple shifts that have taken place over a relatively short period of slightly more than a decade.

The first shift deals with the actors involved in the process. Hyland and Hamp-Lyons (2002) and Carlino (2003) focus on students, even when they acknowledge the social dimension of literacy. Later, the axis moved toward instructors and institutions (Carlino, 2013) and the sociocultural contexts of the disciplinary communities seen as actively involved in the processes of ACLITs and disciplinary literacy approaches. Thus, the notion of literacy evolves from being an individual process to being framed as a fundamentally social one. A second, related shift focuses on the learning process in the first version of the definition, whereas in subsequent ones, mainly influenced by Carlino (2013), instruction was favored. A third shift can be found in the plane where learning and teaching are considered. These first two definitions encompass the skills, ideas, and strategies that should be learned, situating literacy at the cognitive and mental level. In contrast, ACLITs and disciplinary literacy approaches focus on concrete practices. In other words, they consider literacy as an action, more external and more linked to the participants, tools, and contexts. A later shift can be found in the adjective that qualifies literacy. While the first definitions refer to academic activity as an overall category in which the differences among the different “tribes” (Becher, 2001) are not emphasized, disciplinary literacy focuses on the specific literacy demands of each field.

PRODEAC

Since 2006, the Program for the Reading and Writing Skills Development Program across the Undergraduate Years (PRODEAC) has been implemented at Universidad Nacional de General Sarmiento, Argentina. This institutional program aims to support disciplinary literacy instruction throughout undergraduate education by taking part in the teaching process in courses of different programs. The sessions related to text production are delivered by a

team of instructors composed of a specialist in the disciplinary area and an instructor in reading and writing. In other words, this initiative represents a genre-based, interdisciplinary, curricular, systematic, and gradual approach to writing instruction, grounded in research (Natale & Stagnaro, 2013).

Concerning the notion of disciplinary literacy and the developments put forward by Bhatia (2008) that see the need to include the practices and genres used in real contexts, we consider it essential to collect and describe the text types actually used by engineers in the professional sphere. Namely, we wanted to research the professional genres and their uses. Following Parodi and others (2010), “in order to make pedagogic interventions grounded in disciplinary literacy and guided by genres, a fundamental prerequisite is to have a detailed description of the texts that are read and circulate within specialized domains” (p. 249). This research aims to contribute specifically in this regard.

Overall, we define professional genres according to their context of production (the companies and firms in which they are written) and their purposes as defined by their organizational aims. Each organization has a particular culture, more or less defined boundaries, and, to some extent, shared features: history, myths, values, structure, management procedures, and discursive practices (Cassany, 2004). Professional communication takes place “in complex oral, written or mixed situations, with transactional and interpersonal interactions, that demand effective and efficient communication to perform assertively, give commands, inform obligations or roles, and constantly communicate information and decisions, establish negotiations, or to orient, consult and control activities or performances and to manage information on different media using information technology” (Aguirre Beltrán, 2000, p. 36).

Collecting and describing professional genres can undoubtedly contribute to initiating future students into the written practices of their future professions.² Moreover, we believe that this study can shed light on our knowledge of formal written genres in authentic professional contexts, which has to this point been focused on merely academic ones.

2 The literature agrees on the pivotal role of genre as a culturally specific means to communicate with peers and colleagues: “understanding the genres of written communication in one’s field is ... essential to professional success” (Trosborg, 2000, p. VII). For this reason, genre is considered “the most operational unit for needs analysis, objective formulation, and learning in Spanish for Specific Purposes,” because it encompasses all the relevant dimensions in teaching and learning specific practices in reading and writing (Cassany, 2004). Following Bhatia (2002), the specific discursive competencies are one of the pillars in professional expert knowledge. In particular, written practice plays a central role as “efficient writing has become a professional skill across the different knowledge areas” (Montolío & López, 2010, p. 218).

Methodology

Firstly, we aimed to gather data on the repertoire of professional genres used in business organizations where advanced Industrial Engineering students and alumni work. We surveyed 15 informants with a structured survey. They were mainly instructors and alumni working in these workspaces. We collected data about the frequent genres in which they wrote, covering both contextual and textual aspects. Contextual aspects included information about the company, the situations in which the genres are used, the participants involved in the production and reading circuits, and those responsible for reviewing and approving the texts. Textual aspects involved the designation of the texts, their objectives, medium, length, and typical structure, among other characteristics. We also asked informants to gather authentic sample texts of the genres in question so as to describe their linguistic features in a future instance. Our informants found it difficult to provide us with those texts due to confidentiality issues.

After collecting the data, we cataloged the kinds of texts which we found. We asked the 17 students participating in the 2012 Supervised Professional Practice Workshop³—who were in their last semester of the undergraduate program and simultaneously worked in the profession—to describe: 1) which genres had been required throughout their course of study and 2) which were required at the onset of their professional career.

Results

A Repertoire of Professional Genres

Based on the analysis of the 15 initial surveys, we identified a set of 33 genres. They are presented in alphabetical order in Table 12.1, following the names of texts given by the informants.

Besides giving information on genres in the business field, the surveys yielded other exciting data for linguistic analysis, which will begin in the next phase of the research. Following a preliminary assessment, the genres listed on the table showed some variations in specific contexts. These variations were related to the different components in the communicative situation: the purpose, the addressee, the code, the topic. Thus, for example, the genre *letter*

3 The Supervised Professional Practice Workshop is a recently created curricular course delivered in the last semester of the Engineering program. It aims to articulate and accompany the student's transition from the academic to the professional environment.

could serve various purposes in varying contexts.⁴ We found, among others, that the award letter, the thank-you letter, and the cover letter in a report all had remarkably different communication goals. The recipients varied significantly, including the board of directors, the company president, bidders, other sectors, and customers. On the other hand, we found a great diversity of semiotic systems in business genres, such as linguistic forms, numerical language, graphics, tables, and maps. Finally, in terms of topic variation, some genres—such as flowcharts—differ based on their function; flowcharts can describe operations or provide information, i.e., operation flowcharts and information flowcharts.

Furthermore, various relationships between the identified text types have been observed. Undoubtedly, recognizing variations among instances of the same genre, identifying and analyzing the functions that semiotic codes serve in achieving generic goals, and examining the relationships between different text types are aspects that warrant a more in-depth analysis. As these considerations exceed the objectives of this study, they will be addressed in future research.

Table 12.1 Genres in the Business Field

<i>Letter</i> [carta]	<i>Trial/ test report</i> [informe de ensayo]	<i>Action plan</i> [plan de acción]
<i>Notice</i> [circulares]	<i>Trial results report</i> [informe de resultados de ensayo]	<i>Blueprint</i> [plano]
<i>Contract</i> [contrato]	<i>Quality handbook</i> [manual de calidad]	<i>Bids</i> [pliego de condiciones]
<i>Job description or profile</i> [descripción o perfil de puesto de trabajo]	<i>Skills handbook</i> [manual de competencias]	<i>Budget</i> [presupuesto]
<i>Turtle diagram</i> [diagrama de tortuga]	<i>Procedure handbook</i> [manual de procedimientos]	<i>Annual training plan</i> [plan anual de capacitación]
<i>Method and timing study</i> [estudio de métodos y tiempos]	<i>Mission</i> [misión]	<i>Procedures</i> [procedimientos]
<i>Performance assessment</i> [evaluación de desempeño]	<i>Security norms</i> [normas de seguridad]	<i>Logistic protocol</i> [protocolo logístico]
<i>Flowchart</i> [flujograma]	<i>Trial request</i> [pedido de ensayo]	<i>Environmental report</i> [reporte o informe ambiental]
<i>Flyer</i> [folleto]	<i>Company profile</i> [perfil corporativo]	<i>Sustainability report</i> [reporte de sustentabilidad]
<i>Principles guideline</i> [guía de principios]	<i>Contingency plan</i> [plan de contingencia]	<i>Environmental management system</i> [sistema de gestión ambiental]
<i>Report</i> [informe]		<i>Vision</i> [visión]
<i>Annual report</i> [informe anual]		

4 The names of the genres are written in italics.

Professional Genres in University Education

In the second stage of this research, we delved into the influence of university education on professional performance. With this aim in mind, we surveyed students attending the Supervised Professional Practice Workshop who participated in the academic and labor fields simultaneously. Unlike previous research (Cassany & López, 2010), the results show that there were essential connections between the discursive forms required at the onset of professional life and those required in the university courses in the last section of the Industrial Engineering program at UNGS. Table 12.2 shows the genres the students reported having written in each context. Data is organized from the highest to the lowest frequency in the professional field so as to easily identify the intersection points and the genres that should be addressed in the formative stage.

Table 12.2 Genres Written by Students Pursuing the Industrial Engineering Degree in the Academic and Business Fields

Genres	At University	In the Professions
Report	15	9
Flowchart	7	6
Action plan	2	6
Blueprint	6	6
Contract	0	5
Job description or profile	3	5
Budget	1	5
Notice	0	4
Method and timing studies	6	4
Flyer	4	4
Procedure handbook	1	4
Trial request	0	4
Procedures	3	4
Performance assessment	1	3
Trial report	4	3
Trial results report	3	3
Annual report	3	3
Security norms	2	3
Annual training plan	0	3

Genres	At University	In the Professions
Contingency plan	0	3
Special report	0	3
Thank-you letter	1	2
Quality handbook	0	2
Principles guideline	0	1
Logistic protocol	0	1
Environmental report	1	1
Vision	4	1
Mission	4	1
Sustainability report	1	0
Turtle diagram	0	0
Skills handbook	0	0
Company profile	0	0
Environmental management system	0	0

The surveys revealed that, among the 33 genres mentioned by engineers working in companies, students nearing graduation who are already integrated into the workforce reported having produced 28 of these genres in their professional environment. This data suggests that novice professionals engage with professional genres almost immediately when they join professional life, even before their graduation. This might indicate that students should be trained in those genres at the university to support or optimize their participation in future professional contexts.

The engineers in the group suggested four genres that were not known by the students in their workplace, nor were students trained in those genres in the university. They were the *turtle diagram*, the *skills handbook*, the *corporate profile*, and the *environmental management system*.

In parallel, during their university coursework, the informants acknowledged having written 20 professional genres, 19 of which were also used in the workplace. The *sustainability report* was the only professional genre studied in the university, but not addressed in the companies where the students worked. However, it is a genre that most larger companies produce and publish on their websites.

Figure 12.1 compares the genres that students reported having produced in each context.

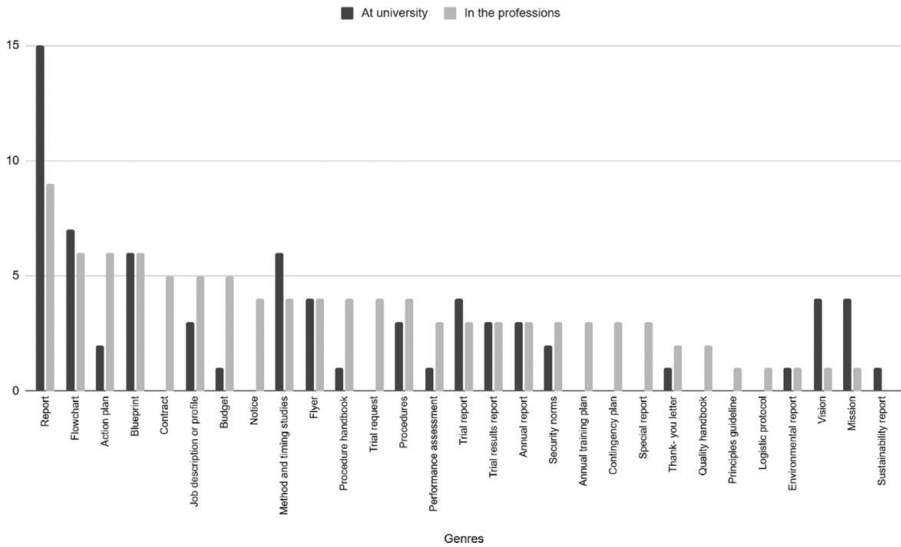


Figure 12.1 Comparison Between the Genres Required in the Professional and Academic Fields

Figure 12.1 shows that the texts most frequently written by members of this group of students in the workplace were the *report*, the *operation flowchart*, the *action plan*, the *blueprint*, the *contract*, the *description or job profile*, and *the budget*. A great majority of genres circulating in the workplace were addressed at the university. In this sense, the survey results provide valuable insights into identifying the genres that graduates need to master but that are not currently covered in their academic training.

On the other hand, Figure 12.1 shows that there were nine genres produced in the workplace but not addressed in the university: *contract*, *notices*, *trial request*, *annual training plan*, *contingency plan*, *specifications*, *quality handbook*, *principles guideline*, and *logistics protocol*. This data can be helpful to assess the relevance of including these genres in university courses. However, although the students commented on not having learned some of these types of texts during their academic trajectory, it can be observed that they have had some exposure to genres embedded within broader genres. For example, although there was no affirmative answer for the genre *procedure handbook* in the academic field, three positive responses were given to the genre *procedure*, which is an essential component of the handbook (Stagnaro et al., 2012). Therefore, we could say that analyzing the latter can contribute to laying the foundations upon which the future graduate could build a *handbook*.

Final Reflection

Up to this point, we have initially reviewed the development of conceptualizations of writing and teaching practices in university settings. We have pointed out a transition from the notion of *academic literacy*, centered on the students' individual cognitive process and their abilities, to *academic literacies*, understood in terms of diverse and socially situated practice that is cultural, historical, and institutional in nature. Finally, we have identified a shift towards practice through *disciplinary literacy*, which shares many principles with *academic literacies* but emphasizes the students' learning processes and the particular practices of the discipline.

Then, we briefly presented PRODEAC. From this program stemmed the need for research aimed at detecting the genres used in the professional engineering field, thus enabling universities to assume the responsibility to teach them during academic education. Thereafter, we shared that the surveys of industrial engineers made it possible to identify a set of 33 genres used in the corporate world. Finally, through the data obtained from the survey of students in the last semester of the Industrial Engineering program, we found certain trends and divergences related to previous research findings which claimed that the university does not deal or scarcely deals with professional genres. In Spain, Cassany and López (2010) found that universities require fewer genres than the ones written in the professions by alumni. Similarly, Parodi and others (2010) in Chile acknowledged a reduced variety of genres in the university context—only nine—compared to the greater breadth and diversity in professional contexts. These Chilean researchers suggested that the lack of variety could become a stumbling block in transitioning from the university to the professional world. In contrast, we have found that out of the 33 genres identified in the workplace, the university has addressed 20 of them halfway through the Industrial Engineering Program, meaning that it has taught almost 70% of the genres with which novice professionals will have to interact.

This difference could be due to two reasons. On the one hand, the vast majority of faculty members in the program have worked as engineers in companies, which has provided them with insider knowledge of the field, enabling them to apply this expertise to the design of their teaching and assessment plans. On the other hand, the Education Coordinator of the Institute of Industry, housing the Engineering program, believed that the interaction between the course instructors and the PRODEAC faculty has contributed to identifying and selecting the professional genres linked to the theme developments in the courses from a perspective that considered students' future

professional life. Finally, the analysis has also allowed us to identify the genres required in the engineering workplace but not addressed in the Engineering program. Consequently, more research is needed to describe the following genres: *contract, notices, trial request, annual training plan, contingency plan, special reports, quality handbook, principles guideline, and logistics protocol.*

It seems crucial to keep researching the writing taking place in the professional world in order to identify and describe the main genres required of students in this context after they graduate, and to develop pedagogical resources to be included in the education of our engineers.

Another important point is to determine whether the traits of genres at university align with those circulating in professional environments. This requires analyzing the discursive features of both sets across different dimensions, such as textual organization, the semiotic systems in use, and the appraisal and interpersonal resources employed, among others that may emerge from further exploration.

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Reflection

The original article presented the preliminary findings from an interdisciplinary research project.⁵ The project stemmed from a concern about the development of Engineering undergraduates and their need to know the genres demanded in professional contexts so as to incorporate them in undergraduate education curriculum and instruction. In that sense, we believe that the main contribution of this publication lies in offering a repertoire of professional genres that can potentially be included in the teaching of the discipline in relation to the content and professional profiles of engineering degrees. Moreover, it extends the invitation to investigate professional writing in other disciplines to improve teaching practices and professional development during the undergraduate degrees, as it relates to the needs of the students' future professions. In the case of Engineering degrees, this question becomes even more relevant because it is directly related to the region's economic and productive development.

Something that was not addressed in this first article of the research project on writing practices in the field of industrial engineering is the description

5 The research project was titled "Professional writing practices in the business context" [Prácticas de escritura profesional en contexto empresarial] and took place between 2013 and 2015.

of what surrounds the texts and practices that they are part of. Based on the advancements in the field of writing studies and our concerns, we believe that nowadays it would be essential to inquire about the forms of participation and the agency of the novice engineers; particularly in the practices realized by genres and in the pedagogic design of the teaching proposals that address the critical dimensions of literacy. Another element related to the critical dimensions of literacy practices is the development of the appropriate ethnographic perspectives in the study of writing that nowadays are widely accepted in our field compared to when we carried out our study. We believe that ethnographic approaches would enable us to broaden this investigation with tools and perspectives that have been tested by adapting and specifying them to address contemporary problems.

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