How do students write in engineering and the humanities? Intertextuality and metadiscourse in undergraduate dissertations written in Spanish

Article in Círculo de Lingüística Aplicada a la Comunicación - March 2022
DOI: 10.5209/clac.81305

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How do students write in engineering and the humanities? Intertextuality and metadiscourse in undergraduate dissertations written in Spanish

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Recibido: 1 de julio de 2021 / Aceptado: 15 de febrero de 2022

Abstract. This article aims to contrast metadiscourse and intertextuality in 40 undergraduate dissertations written in Spanish in engineering and the humanities at a Chilean university. Results show that guidance on dissertations’ goals and stages is common across disciplines, especially in introductions, although engineering signals goals more often. All students graduate statements, especially in conclusions, but the frequency of graduation doubles in the humanities. Humanities students prefer hedging over boosting, while boosting is more common in engineering. Self-mentions, especially plural authorial, are frequent in the humanities but do not occur in engineering. Citations are five times more frequent and usually integral in the humanities, while engineering only uses non-integral citations. Indirect speech predominates across disciplines, but direct and mixed speech are also relatively common in the humanities. This study can help to understand undergraduate students’ authorial voices written in Spanish, depict discipline-specific writing choices, and supply data for writing instruction initiatives.

Keywords: disciplines; literacy; academic discourse; higher education


Índice. 1. Introduction. 2. Metadiscourse and intertextuality. 3. Research design and methods. 4. Results and discussion. 5. Conclusions. Acknowledgements. References

1. Introduction

During the last decade, there has been an increasing interest in higher education students’ writing across educational stages and disciplinary contexts (Badenhorst et al., 2021; Nesi & Gardner, 2012). Recent research has abandoned a deficit perspective (O’Shea et al., 2016; Smit, 2012) on students’ skills and texts as supposedly deficient versions of expert writing. On the contrary, contemporary research has validated students’ writing as part of legitimate (Wenger, 2010), complex, and situated literacy practices that have individual, social, and educational purposes that differ from other levels of writing expertise, social contexts, and educational stages (Camps, 2007).

In particular, higher education students write to learn new disciplinary contents (Russell, 2013), to embody the ways of communicating that are specific to their disciplinary cultures (Prior & Bilbro, 2012), and to demonstrate what they have learned (Nesi & Gardner, 2012). Writing is not a transcription or a by-product of disciplinary knowledge-making, but an integral part of the intellectual and cultural habitus (Bourdieu, 1997) of a discipline and, as such, may help students examine, connect, transform, and eventually learn disciplinary contents. Additionally, writing is situated and specific to certain disciplinary contexts (Hyland, 2004), while conforming to writing choices, genres, and communication roles and expectations in the discipline is tantamount to professional expertise and recognition within the community. This recognition is not only symbolic since, for the students, writing as is expected in their disciplinary context may lead to obtaining higher grades and, eventually, graduating.

However, higher education students also write to actively resist received literacy practices (Lillis, 2001; Zavala, 2019) and to express and construct their identities through texts (Villanueva, 2015). In increasingly diverse higher education systems (Chiroleu & Marquina, 2017; Lillis, 2001), students frequently experience a contrast between the literacy identities, practices, and resources of their communities and those of traditional universities (Ivanić, 1998), which may influence their perceptions of inclusion or exclusion related to lexical, grammatical, discursive, and rhetorical choices (Ávila Reyes et al., 2021; Lillis, 2008).
This tension between conformity and resistance to received writing conventions, practices, and expectations is rhetorically manifested in the need to construct an original authoritative and systematic voice (Snow & Uccelli, 2009; Thaiss & Zawacki, 2006) that, at the same time, accounts for disciplinary knowledge and specialized audiences. According to Thaiss and Zawacki, academic writing includes evidence that the writer has been persistent, open-minded, and disciplined in study, and interacts with an imagined reader who intends to formulate a reasoned response. For Snow and Uccelli, academic communication demands representing the self and the audience, acknowledging the status of intangible non-interactive audiences, displaying one’s knowledge and that of others, emphasizing co-membership with an academic audience, presenting a neutral stance, selecting an authoritative voice, and clarifying the epistemological status of one’s claims.

This represents a major writing challenge for undergraduate students on their path to developing an authorial identity (Hyland, 2002; Ivanić & Camps, 2001) as they are expected to adopt a particular stance, offer their interpretations and comments on sources, and negotiate with intended readers in creative ways that simultaneously follow discipline-specific patterns. As previous research has shown, despite disciplinary variation, academic expertise correlates with a more frequent and diverse use of writing resources to position the authorial voice (Martin & White, 2005) with respect to other voices and alternative positions (Hyland, 2004, 2019). Previous studies have shown that supporting students’ development of an authorial voice has a positive impact on writing quality (Castelló et al., 2011).

In particular, students’ authorial voice must offer guidance and negotiate expectations with intended readers through metadiscourse resources (Hyland, 2019). At the same time, students’ authorial voice must evoke and interpret expert disciplinary knowledge and sources through intertextuality resources (Bazerman, 2004). Metadiscourse refers to linguistics cues that writers draw from to meet readers’ perceived needs; interactive resources are used by writers to guide readers through their texts, while interactional resources enable writers to manifest their commitment towards propositional content and to engage in particular dialogues with readers. Intertextuality refers to dialogic relations among sources within a common text, which reproduces or alters them by means of techniques of intertextual representation. Direct, indirect, and mixed speech enable writers to establish varying degrees of appropriation and modification of the original source (Reyes, 1993), while integral and non-integral citations (Swales, 1990) help writers give syntactic and semantic prominence to the author or source (integral) or to the propositional content of the source (non-integral).

The use of metadiscourse and intertextuality resources to construct an authoritative and systematic discipline-specific voice is especially critical in undergraduate dissertations as writers are simultaneously expected to communicate as students and professionals. Indeed, dissertations are hybrid genres that contribute novel, original knowledge to an expert community of peers but, at the same time, are read by gatekeepers in an asymmetrical context of educational assessment (Russell, 2013). Although dissertations are required in most masters and Ph.D. programs, undergraduate studies are the first higher education setting where some disciplines and programs demand the genre for graduation and often present a challenge for program completion. Metadiscourse and intertextuality resources are useful to accommodate this complex first textual encounter between a writer-student entering the discipline and expert readers and literature.

Introductory and closing sections in academic genres, such as dissertations, are especially complex in terms of metadiscourse and intertextuality. On the one hand, writers are expected to review previous research, identify and assess research issues, state goals, and describe the organization of their text, while on the other they must interpret results, assess the value of their findings, identify possible shortcomings of their research, and anticipate future developments. Therefore, introductions and conclusions represent a challenge for novice disciplinary writers (Swales, 2004), and can be revealing for the study of students’ writing in higher education (Ondondo, 2020).

Despite its relevance to understanding disciplinary enculturation and the development of students’ authorial voice, studies on metadiscourse and intertextuality in undergraduate dissertations written in Spanish are still scarce. Most studies have focused on postgraduate dissertation writing, approaching the construction of authorial voices through intertextuality (Calle-Arango et al., 2021) and metadiscourse (Ondondo, 2020; Osorio & Añez, 2017; Hyland, 2010). In contrast, undergraduate dissertation writing has been studied focusing on rhetorical moves (Pratiwi et al., 2021; Venegas et al., 2016) and only rarely on metadiscourse and intertextuality (Fahler et al., 2019; Hyland, 2002), often in comparison to postgraduate programs (Meza & Sabaj, 2016; Venegas et al., 2013). Moreover, most studies focus primarily on English, but writing choices in Spanish have received less attention.

This article aims to contrast metadiscourse and intertextuality in undergraduate dissertations written in Spanish in the humanities and engineering. The corpus (N=98,497 words) comprises the introductions and conclusions of 40 recent and successfully completed undergraduate dissertations written in Spanish from philosophy and electrical engineering programs at a public, metropolitan research university in Chile. Using computer-assisted qualitative data analysis software, a set of metadiscourse (endophoric markers, frame markers, boosters, hedges, and self-mentions; Hyland, 2019) and intertextual (reported speech and citations; Bazerman, 2004) resources were qualitatively coded. Occurrences were quantified, and disciplinary and textual contrasts were traced. Additional checks (interrater reliability, K=0.87; auditing) were used to ensure methodological integrity (Levitt, 2019).

This study contributes to a better understanding of authorial voices in undergraduate students’ dissertations written in Spanish, as well as helping to identify how students’ writing varies depending on textual stages and disciplinary
context. More importantly, it provides data on actual students’ situated choices, which could help to guide writing programs and initiatives.

2. Metadiscourse and intertextuality

Metadiscourse and intertextuality resources are essential to construct an authoritative and systematic authorial voice in academia, which is an expected feature of higher education students’ writing (Ivanic & Camps, 2001; Snow & Uccelli, 2009; Thaiss & Zawacki, 2006). Students must draw from metadiscourse resources to offer guidance and negotiate expectations with intended readers (Hyland, 2019), while also drawing from intertextuality resources to evoke and interpret previous disciplinary knowledge (Bazerman, 2004). The use of metadiscourse and intertextuality to develop an authoritative authorial voice is particularly challenging in dissertations, as it requires a fine-tuned balance between conformity to expectations and negotiated resistance so as to offer an original contribution to the discipline.

Metadiscourse refers to linguistics cues that writers draw from to meet readers’ perceived needs. Hyland (2017; 2019) distinguishes two broad categories of metadiscourse, namely interactive and interactional. The former refers to linguistic resources used by writers to both manage the interpretation of their arguments and to lead the reader through the text; interactive metadiscourse includes frame markers, transition markers, endophoric markers, evidentials, and code glosses. On the other hand, writers use interactional markers to convey their commitment or to position themselves in relation to certain information, as well as to develop the specific type of interchange they want with their expected readers; interactional metadiscourse includes hedges, boosters, attitude markers, self-mentions, and engagement markers.

This study focuses on metadiscourse categories that are essential to develop an authorial voice: endophoric markers and frame markers (interactive); and hedges, boosters, and self-mentions (interactional). Frame markers are explicit expressions of the objectives within other stages or movements within the texts that are used to organize the discourse; in Spanish, these include resources such as primero (first), en resumen (in brief) or mi propósito es (I aim to). In turn, writers use endophoric markers to guide readers to certain statements or parts of the texts by referring to them either anaphorically or cataphorically; in Spanish, these include en la sección x (in section x) or imagen x (figure x), among others.

As for interactional resources, hedges generally tend to moderate arguments, thus protecting writers from potential negatability. Hence, with hedges, writers open the dialogue space with their readers. In contrast, boosters help writers to convey certainty and assertiveness through their statements. These two markers, hedges and boosters, are related to the writers’ stance towards the expressed content–by graduating the level of certainty and commitment–and to the type of dialogue writers want to engage in with their readers. Hedges in Spanish include podría (could), quizás (perhaps), es posible (it is possible), posiblemente (possibly), among others, whereas boosters include resources such as en efecto (indeed), definitivamente (definitely), está claro que (it is clear that), or seguro (sure) (Osorio & Añez, 2017).

Lastly, self-mentions are markers that express overt intervention of writers in the discourse, and help them construct their authorial persona; consequently, they are known as writer-oriented resources. Self-mentions are realized in Spanish through first-person (singular and plural) personal pronouns and verb inflection; first-person singular resources are considered coincidental, as they are related to the individual writer responsible for the text, whereas first-person plural resources are considered either authorial, when they are used rhetorically to refer to the writer together with their intended reader, or generic, when they refer to people in general (García Negroni, 2008).

Intertextuality refers to dialogic relations among sources within a common text, which reproduces or alters them through techniques of intertextual representation (Bazerman, 2004). The way a written text refers to, evokes or uses other texts and sources varies from more explicit, emphasized and direct mentions, such as direct speech and integral citations, to more implicit, de-emphasized and indirect mentions, such as indirect speech and non-integral citations (Swales, 1990). Direct speech is usually identified by quotation marks or other typographic markers (italics, block indentation) signalling that the wording is entirely that of the original; in contrast, indirect speech explicitly specifies a source but filters the original meaning through the writers’ own words and perspectives (Bazerman, 2004; Reyes, 1993); finally, mixed speech combines a paraphrasis of the original source with a partial reproduction of the source wording (Fahler et al., 2019). Additionally, integral citations give syntactic and semantic prominence to the author or source as part of the clause; in contrast, non-integral citations focus on the propositional content of the source, as it remains partially occluded between brackets or in a final-note (Swales, 1990).

Studies on metadiscourse and intertextuality in undergraduate students’ dissertation writing are still scarce. Hyland (2002) explores authorial identity in 64 undergraduate dissertations across eight disciplines by looking at the use of the first-person. He finds that students avoid self-mentions even when building an argument or making a claim as a form of avoiding showing authority or depicting themselves in an individualistic identity. As for metadiscourse in postgraduate students’ writing, Hyland (2019) compares the use of metadiscourse in 240 postgraduate dissertations written by EFL (English as a Foreign Language) students from six disciplines in Hong Kong. Drawing from corpus analysis techniques, he finds that master dissertations use an average of 2.1 frame markers, 2.2 endophoric...
markers, 8.6 hedges, 3.2 boosters, and 1.4 self-mentions per 1,000 words; in contrast, the use of metadiscourse is notably increased in doctoral dissertations: 3 frame markers, 2.4 endophoric markers, 9.6 hedges, 3.5 boosters, and 4 self-mentions per 1,000 words. When comparing across disciplines, he found that hedges (among interpersonal) and transitions (among interactive) were the most frequent metadiscourse resources used overall, and that social science and the humanities tend to incorporate more metadiscourse than the so-called hard sciences; in particular, electronic engineering postgraduate dissertations average 2.5 frame markers, 4.3 endophoric markers, 6.1 hedges, 2.8 boosters, and 1.8 self-mentions per 1,000 words. In Spanish, Navarro (2014) contrasts 16 failed exams and exams with high grades in the humanities (education, philosophy, history, and letters) in Argentina. Drawing from appraisal theory, he finds that high grades are linked to texts that use more varied and complex interpersonal meaning-making resources, such as more varied options and directions of graduation and more open, dialogistic options of engagement. In another study focusing on undergraduate and Ph.D. dissertations in Spanish and Portuguese, Navarro and Caldas (2019) found that self-mentions are non-existent for engineering undergraduate writers in both languages, whereas singular and, especially, plural first-person are rarely used at the postgraduate level. As for studies of Spanish at the graduate level, Osorio and Añez (2017) analysed 10 Ph.D. dissertations by Venezuelan students and 10 by Spanish students in the field of education to describe the use of metadiscourse resources. They found a similar amount of this type of marker in both countries, with boosters, hedging, and self-mentions as the most frequent. Among these, they report massive use of boosters, contrasting with infrequent use of hedging, and scarce presence of self-mentions in singular, first-person forms, favouring instead the first-person plural and third-person singular forms.

As for the study of undergraduate students’ use of intertextuality, Lombardi (2021) examined direct quotation and citation phraseology in 99 undergraduate student essays in the context of placement exams in a university in the United States, comparing them according to the four different levels they are assigned. Her results show that direct quotation frequency increases from the lower to the higher levels, but, contrastively, these quotations tend to be shorter in higher levels. Additionally, her study found variation in the syntactic features of quotations, with higher-level essays quoting short phrases, contrasting with whole-sentence or longer quotations in the lower levels. Research on students’ use of intertextuality in Spanish is particularly scarce. Fahler et al. (2019) compare intertextuality in undergraduate writing in Spanish across two disciplines (history and letters); they found that explicit intertextuality is an expected feature in student academic writing in the humanities, although texts in letters programs tend to quote more and prefer direct speech compared to history texts. Other studies contrast or account for undergraduate writing together with higher educational levels. Meza and Sabaj (2016) examine consensus and dissent functions in 36 dissertations in linguistics in the undergraduate, master, and doctoral degrees. They find that consensus and dissent strategies represent a low percentage of the corpus, even though consensus is more frequent than dissent. Venegas et al. (2013) explore citations and reporting patterns in a corpus of 36 undergraduate and master’s degree theses in linguistics and philosophy. They find that indirect speech is predominant across disciplines with a slight decrease from undergraduate (62.7 % and 93.2 % in philosophy and linguistics, respectively) to postgraduate level (48.2 % and 89.1 %, respectively). They also find scarce use of the first-person singular, especially at the postgraduate level, in both disciplines. These findings show interesting contrasts with citations’ tendencies in expert writing; for example, Hyland (2004) shows that electronic engineering articles prefer non-integral (84.3 %) over integral (15.7 %) citations, and include 8.4 citations per 1,000 words, whereas philosophy articles prefer integral (64.6 %) over non-integral (35.4 %) citations, and include 10.8 citations per 1,000 words.

3. Research design and methods

This study is part of a wider research project that aims to account for students writing across the disciplines (arts, health sciences, social sciences, the humanities, science pedagogy, and engineering) and educational stages (entrance, transition, and graduation), using mixed methods and triangulating data from writing samples, focus groups, and surveys (Navarro et al., 2021). This particular research focuses on engineering and the humanities at the graduation stage, and draws from students’ writing samples.

This study aims to contrast metadiscourse and intertextuality in undergraduate dissertations written in Spanish in the humanities and engineering. It addresses the following questions:

(1) How do writers use metadiscourse resources (endophoric markers, frame markers, boosters, hedges, and self-mentions) in introductions and conclusions of undergraduate engineering and the humanities dissertations written in Spanish?

(2) How do writers use intertextuality resources (reported speech and citations) in introductions and conclusions of undergraduate engineering and the humanities dissertations written in Spanish?

(3) How do metadiscourse and intertextuality resources vary among disciplines (engineering and the humanities) and textual stages (introductions and conclusions)?

The corpus for this study (N=98,497) comprises the introductions and conclusions of 40 recent and successfully completed undergraduate dissertations written in Spanish by students in electrical engineering and philosophy programs at a public, metropolitan research university in Chile. The dissertations were randomly selected from the open-access library of the university. The selection of highly rated or successfully completed writing samples represents what situated and distributed gatekeepers (i.e., professors) consider appropriate disciplinary writing in
their contexts. Electrical engineering and philosophy were considered paradigmatic sub-fields in engineering and the humanities that could shed light on general writing patterns in these areas, although other diverse sub-fields are also included in these larger areas. The dissertations, which were supervised by one or two faculty members, were individually written and completed between 2012 and 2017, leading to an undergraduate degree in an 11-semester (electrical engineering) or eight-semester (philosophy) program.

Table 1 shows tendencies of dissertation lengths within the corpus. Dissertations in engineering and the humanities are similar in length (28,260 words in 85 pages on average), and both areas allow for flexibility (57 to 158 pages in engineering vs. 46 to 154 pages in the humanities). Humanities dissertations are, on average, slightly shorter (around 80 pages) than engineering dissertations (around 90 pages), but have a higher word count (29,216 on average, compared to 27,304 in engineering). This contrast between slightly more pages in engineering and slightly more words in the humanities is due to the former including numerous images, graphics, and tables, since engineering texts are more multimodal. The average length of introductions and conclusions is similar, both within dissertations and across disciplines, at around 1,200 words each. However, humanities’ dissertations are, on average, slightly longer both in their introductory and closing sections (around 21% and 36% longer, respectively). The conclusions of dissertations in the humanities are longer than the introductions, whereas dissertations in engineering show the opposite tendency. That is, engineering students do not show as much textual effort as humanities students in summing up, interpreting, and projecting the main findings. In sum, dissertations are similar in page and, especially, word count across disciplines; this similarity between engineering and the humanities, two epistemologically and culturally different areas, may be due to common genre goals and institutional context.

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<th>Table 1. Page and word count of undergraduate dissertations in engineering and the humanities</th>
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Assisted by QSR NVivo 11 qualitative analysis software, explicit realizations of selected metadiscourse and intertextuality resources were coded in the introduction and conclusion sections of the dissertations of the corpus; these sections were considered highly rhetorical stages of the genre so it was anticipated that they would include realizations of metadiscourse and intertextuality resources (see Ondondo, 2020). The introduction and conclusion sections were explicitly indicated by the writers through the use of subtitles, so their boundaries were relatively easy to determine (one dissertation has no introduction, whereas another has no conclusion).

Metadiscourse was coded when there were explicit frame markers, endophoric markers, hedges, boosters, or self-mentions. Frame markers and endophoric markers were considered together as a set of meaning-making resources that provide guidance towards the purposes and structural stages of the dissertation. Frame markers were coded when there were explicit references to what the research or the author/dissertation aims to do, has done or has not been able to do; other frame markers included in metadiscourse literature (i.e., discourse organizers) were not considered in this study. Frame markers related to goals or purposes of the research or the author/dissertation are realized in the corpus by means of metonymy referring to what the dissertation or the research does, as in esta memoria describe (this dissertation describes); verbs in passive voice, as in se propone (it is proposed); nouns related to goals, as in el propósito de este trabajo es (the purpose of this work is); and sections’ subtitles, especially in engineering, which identify lists of nominalizations as goals, as in Revisión del estado del arte (State-of-the-art review). Both accomplished and unaccomplished goals–frequent in the conclusion section–were coded as frame markers.

Endophoric markers were coded when there was explicit metadiscourse signalling how the dissertation is organized in stages, as in en el segundo capítulo (in the second chapter), or signalling text chunks, as in previamente...
Booster and hedging resources were considered together as a set of meaning-making resources that graduate the level of certainty and doubt of the writer regarding statements, and therefore limit or increase their commitment to what is said. Hedges in the corpus include adverbs and adverbial phrases such as quizás (maybe), posiblemente (possibly), relativamente (relatively), prácticamente (practically), en cierta manera (somewhat); hedges also include possibility modal verbs and periphrasis such as puede ser (it could be), puede decirse (it could be said) y parece (it seems); and conditionals, such as sería (it would be). Boosters in the corpus include adverbs and adverbial phrases that express certainty about a statement, such as ciertamente (certainly), verdaderamente (truly), justamente (indeed), de hecho (in fact), sin duda (no doubt), en absoluto (absolutely); boosters also include evidential verbs that convey certainty, such as mostrá (show), manifestar (manifest), and evidenciar (prove); and resources that realize deontic modality, that is, the need or obligation of something, such as necesitar (need) or requerir (require), deber (must), o necesario (necessary).

Finally, self-mentions were coded when there were resources to signal first person (singular and plural) in different syntactical roles. It includes three choices: coincidental, which is the first-person singular (in Spanish, usually implicit through ellipsis and manifested in the verbal affix) that coincides with the writer or through personal pronouns, as in me parece (I think); authorial, which is the first-person plural as a rhetorical persona, usually including the reader, as in veremos (we will see); and generic, which is the first-person plural referring to social groups or humankind, as in solemos pensar (we usually think). As can be seen, there is a personalization-depersonalization continuum from coincidental, to authorial and finally to generic choices (García Negroni, 2008).

Frame markers (specifically related to goals), endophoric markers (specifically related to sections and text chunks), hedges, boosters, and self-mentions do not cover the complete set of metadiscourse resources reported in the literature. However, they are central meaning-making resources to develop an explicit authorial voice in academic writing that allows student-writers to position themselves with respect to other voices and alternative views (Martin & White, 2005), while engaging and construing a prospective reader (Hyland, 2019); frame markers specify goals, endophoric markers identify the textual structure, hedges and boosters graduate the commitment with statements and findings, and self-mentions depict a writing persona that might be more visible or more depersonalized.

Intertextuality was coded when there was an explicit reference to another text or author. The codification of reported speech distinguished between direct speech (reporting the exact wording used in the source as indicated by quotation marks or other typographic markers), indirect speech (summing up or paraphrasing the source), and mixed speech (combination in the same clause group of direct and indirect speech). As for citations, integral citations were coded when the author or source was included as part of the clause (Swales, 1990); in contrast, non-integral citations were coded when the author or source were included in brackets or in final notes.

Example (1) is part of a dissertation in the humanities that introduces the quoted author as the subject of the clause (integral citation) and draws from direct speech to use the exact words of the source by means of quotation marks. In contrast, example (2), from a dissertation in engineering, uses indirect speech to paraphrase knowledge and focus on the statements from a source, which is restricted to a final note (non-integral citation). Finally, example (3) from the humanities focuses on the author under discussion (integral citation) and combines a first statement that paraphrases the author with a direct quotation of the source (mixed speech).

1. El filósofo francés sostiene que hay “una diferencia de estatuto entre dos tipos de discursos: aquellos que expresan una condición social y los que explican, a la vez, esa condición y las razones por las que se expresa de cierta manera” (Rancière, 2010b: 8). / The French philosopher argues that there is “a difference in status between two types of discourses: those that express a social condition and those that explain, at the same time, that condition and the reasons why it is expressed in a certain way” (Rancière, 2010b: 8).

2. Por otra parte, el trabajo facilita desarrollos en la industria del entretenimiento, como controles para videojuegos y sistemas interactivos para ordenadores personales [6]. / On the other hand, the work facilitates developments in the entertainment industry, such as video game controllers and interactive systems for personal computers [6].

3. Siguiendo a Santos, el papel es el formato hegemónico en el que se investiga y publica, y que “responde a una determinada idea del saber científico que encuentra en este tipo de discurso el medio más idóneo para la comunicación. La instalación del papel en el ámbito de las Humanidades, por lo tanto, obedece a un ‘traslado’, para decirlo con delicadeza, o a una ‘invasión’ si se quiere ser más insidioso” (Santos, 2012, pp. 204). / According to Santos, the article is the hegemonic format for conducting and publishing research, which “responds to a certain idea of scientific knowledge that finds in this type of discourse the most suitable medium for communication. Therefore, the installation of the article in the Humanities is due to a ‘relocation’, to put it delicately, or an ‘invasion’ if one wants to imply insidious intent” (Santos, 2012, pp. 204).

Reported speech and integral/non-integral citations do not account for the whole range of techniques of intertextual representation, nor do they explore the functions of citations. However, they are key meaning-making resources
4. Results and discussion

4.1. Metadiscourse in engineering and humanities undergraduate dissertations written in Spanish

Table 2 shows the distribution of metadiscourse meaning-making resources in engineering undergraduate dissertations written in Spanish, while Table 3 shows comparable patterns of metadiscourse in the humanities. Overall, the humanities (35.4/1,000 w) tend to deploy more metadiscourse than engineering (24.5/1,000 w); the contrast is statistically significant (Z=9.82). These findings confirm other studies with other languages (Hyland, 2010, 2019) and levels, such as Hyland’s (2010, 2019) studies comparing the humanities and social sciences with hard sciences’ MA and Ph.D. dissertations. Guidance on goals and stages of dissertations is common across both engineering and the humanities. However, engineering doubles (19.3/1,000 w.) the frequency of guidance in the humanities (9.4/1,000 w.); the contrast is statistically significant (Z=-13.27). This is especially the case for frame markers used to signal goals (14.7/1,000 w. in engineering compared to 6.1/1,000 w. in the humanities); the contrast is statistically significant (Z=-13.53). That is, dissertations in engineering show an impressive number of clues for readers to understand the purpose of the research. As can be expected, most guidance resources in both areas are located in the introduction (28/1,000 w. in engineering, 15.1/1,000 w. in the humanities); the contrast is statistically significant; Z=9.82) as an early stage to communicate to readers the organization of the research and the dissertation.

Regarding the use of hedges and boosters across disciplines, undergraduate students tend to graduate statements both in engineering and the humanities, that is, undergraduate writers are expected to negotiate statements, as previous research has found (Hyland, 2019; Navarro, 2014; Ondondo, 2020). The humanities almost double (19.3/1,000 w.) the frequency of hedge markers over boosters (6/1,000 w.) in introductions and conclusions; the contrast is statistically significant (Z=7.46). Additionally, dissertations in the humanities show a slightly higher number of hedges (55.7 %) than boosters (44.3 %), while engineering students prefer boosting (60.3 %) over hedging (39.7 %); the contrastive use of hedges (Z=3.93) and boosters (Z=-3.93) between disciplines is statistically significant. This means that students in the humanities appear to show less certainty and more openness to discussion than engineering students. This trend in the humanities is consistent with previous research, although studies have found an even sharper preference for hedging over boosting in the humanities at the postgraduate level (Hyland, 2010, 2019; Osorio & Añes, 2017). Adding up graduation resources from both corpora shows that undergraduates average 3.8 hedges/1,000 w. (compared to 8.6 in masters dissertations and 9.6 in doctoral dissertations in Hyland’s study) and 3.7 boosters/1,000 w. (compared to 3.2 in master dissertations and 3.5 in doctoral dissertations). This might indicate that undergraduate students writing in Spanish tend to use less hedges but more boosters than writers in other languages, settings, and educational stages.
Table 2. Metadiscourse resources in engineering undergraduate dissertations written in Spanish

<table>
<thead>
<tr>
<th>Guidance</th>
<th>Engineering (electrical)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Introduction</td>
<td>Conclusions</td>
</tr>
<tr>
<td>n. /1,000 w.</td>
<td>n. /1,000 w.</td>
<td>n. /1,000 w.</td>
</tr>
<tr>
<td>Frame markers (goals)</td>
<td>439/20.1</td>
<td>177/8.8</td>
</tr>
<tr>
<td>Endophoric markers (stages)</td>
<td>172/7.9</td>
<td>24/1.2</td>
</tr>
<tr>
<td>Total</td>
<td>611/28</td>
<td>201/9.9</td>
</tr>
<tr>
<td>Graduation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hedges</td>
<td>24/1.1</td>
<td>61/3</td>
</tr>
<tr>
<td>Boosters</td>
<td>73/3.4</td>
<td>56/2.8</td>
</tr>
<tr>
<td>Total</td>
<td>97/4.4</td>
<td>117/5.8</td>
</tr>
<tr>
<td>Self-mentions (1st person)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coincidental (sg.)</td>
<td>0/0</td>
<td>0/0</td>
</tr>
<tr>
<td>Authorial (pl.)</td>
<td>0/0</td>
<td>0/0</td>
</tr>
<tr>
<td>Generic (pl.)</td>
<td>1/0</td>
<td>0/0</td>
</tr>
<tr>
<td>Total</td>
<td>1/0</td>
<td>0/0</td>
</tr>
<tr>
<td>Total</td>
<td>709/32.5</td>
<td>318/15.7</td>
</tr>
</tbody>
</table>

As for the dissertation sections, the humanities show a slightly higher use of hedges and boosters in conclusions than in introductions, and also prefer hedges over boosters within introductions (4.8/1,000 w. compared to 3.8/1,000 w.) and conclusions (5.4/1,000 w. compared to 4.4/1,000 w.), although this variance is not statistically significant. In contrast, engineering shows a mixed situation: hedging almost triples in conclusions (3/1,000 w.) compared to introductions (1.1/1,000 w.), a statistically significant contrast (Z=-4.37). However, engineering shows a slight tendency to boost more in the introduction (3.4/1,000 w.) compared to the conclusion (2.8/1,000 w.), although this contrast is not statistically significant. These results also show a statistically significant (Z=-4.98) preference for boosters (3.4/1,000 w.) over hedges (1.1/1,000 w.) in the introduction. These patterns show that the closing section of dissertations could be a relevant textual site of negotiation with readers, particularly for conceding the certainty of statements in engineering.

Finally, self-mentions show sharp contrasts across disciplines: the first-person is used 16.7 times every 1,000 words (with a predominance of authorial plural persona in 60 % of occurrences) in introductions and conclusions in the humanities, while it is almost non-existent in engineering, a statistically significant contrast (Z=26.58). This finding confirms previous research in Spanish and Portuguese undergraduate engineering dissertations (Navarro & Caldas, 2019), which show no occurrences of self-mentions. In contrast with these results, Hyland (2019) found that postgraduate students in electronic engineering use 1.81 self-mentions every 1,000 words. This contrast could be understood due to the curricular level of the students, but also because of cultural differences as other studies have shown the avoidance of the first person by Spanish speakers (Lorés-Sanz, 2011) and Chinese speakers (Hyland, 2002). Interestingly, the coincidental self-mention in the humanities is more frequent in introductions (4/1,000 w.), where the authorial persona is first constructed, than in conclusions (1.3/1,000 w.), a statistically significant contrast (Z=6.40). As for generic self-mentions in

Table 3. Metadiscourse resources in humanities undergraduate dissertations written in Spanish

<table>
<thead>
<tr>
<th>Guidance</th>
<th>Humanities (philosophy)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Introduction</td>
<td>Conclusions</td>
</tr>
<tr>
<td>n. /1,000 w.</td>
<td>n. /1,000 w.</td>
<td>n. /1,000 w.</td>
</tr>
<tr>
<td>Frame markers (goals)</td>
<td>246/9.4</td>
<td>98/3.2</td>
</tr>
<tr>
<td>Endophoric markers (stages)</td>
<td>151/5.8</td>
<td>36/1.2</td>
</tr>
<tr>
<td>Total</td>
<td>397/15.1</td>
<td>134/4.4</td>
</tr>
<tr>
<td>Graduation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hedges</td>
<td>126/4.8</td>
<td>164/5.4</td>
</tr>
<tr>
<td>Boosters</td>
<td>99/3.8</td>
<td>132/4.4</td>
</tr>
<tr>
<td>Total</td>
<td>225/8.6</td>
<td>296/9.8</td>
</tr>
<tr>
<td>Self-mentions (1st person)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coincidental (sg.)</td>
<td>104/4</td>
<td>38/1.3</td>
</tr>
<tr>
<td>Authorial (pl.)</td>
<td>288/11</td>
<td>278/9.2</td>
</tr>
<tr>
<td>Generic (pl.)</td>
<td>67/2.6</td>
<td>169/5.6</td>
</tr>
<tr>
<td>Total</td>
<td>459/17.5</td>
<td>485/16.1</td>
</tr>
<tr>
<td>Total</td>
<td>1081/41.2</td>
<td>915/30.3</td>
</tr>
</tbody>
</table>

As for the dissertation sections, the humanities show a slightly higher use of hedges and boosters in conclusions than in introductions, and also prefer hedges over boosters within introductions (4.8/1,000 w. compared to 3.8/1,000 w.) and conclusions (5.4/1,000 w. compared to 4.4/1,000 w.), although this variance is not statistically significant. In contrast, engineering shows a mixed situation: hedging almost triples in conclusions (3/1,000 w.) compared to introductions (1.1/1,000 w.), a statistically significant contrast (Z=-4.37). However, engineering shows a slight tendency to boost more in the introduction (3.4/1,000 w.) compared to the conclusion (2.8/1,000 w.), although this contrast is not statistically significant. These results also show a statistically significant (Z=-4.98) preference for boosters (3.4/1,000 w.) over hedges (1.1/1,000 w.) in the introduction. These patterns show that the closing section of dissertations could be a relevant textual site of negotiation with readers, particularly for conceding the certainty of statements in engineering.

Finally, self-mentions show sharp contrasts across disciplines: the first-person is used 16.7 times every 1,000 words (with a predominance of authorial plural persona in 60 % of occurrences) in introductions and conclusions in the humanities, while it is almost non-existent in engineering, a statistically significant contrast (Z=26.58). This finding confirms previous research in Spanish and Portuguese undergraduate engineering dissertations (Navarro & Caldas, 2019), which show no occurrences of self-mentions. In contrast with these results, Hyland (2019) found that postgraduate students in electronic engineering use 1.81 self-mentions every 1,000 words. This contrast could be understood due to the curricular level of the students, but also because of cultural differences as other studies have shown the avoidance of the first person by Spanish speakers (Lorés-Sanz, 2011) and Chinese speakers (Hyland, 2002). Interestingly, the coincidental self-mention in the humanities is more frequent in introductions (4/1,000 w.), where the authorial persona is first constructed, than in conclusions (1.3/1,000 w.), a statistically significant contrast (Z=6.40). As for generic self-mentions in
the humanities, they are more common in conclusions (5.6/1,000 w.), where generalizations and interpretation of the findings are addressed, than in introductions (2.6/1,000 w.); the contrast is statistically significant ($Z=-5.58$).

4.2. Intertextuality in engineering and humanities undergraduate dissertations written in Spanish

Table 4 (engineering) and Table 5 (the humanities) show clearly differentiated patterns of intertextuality meaning-making resources across disciplines in undergraduate dissertations written in Spanish. Students in the humanities used significantly ($Z=9.30$) more citations (4.7/1,000 w.) than engineering students (1.3/1,000 w.). As noted by Lombardi (2021) in her analysis of undergraduate placement exams, quotations are a key feature of successful student writing, with texts that include more direct quotations being more valued by evaluators. However, as presented below, analysing only direct quotations does not account for citation patterns in engineering dissertations. On the other hand, these results are in sharp contrast with tendencies in expert writing, where citations are more frequent; Hyland (2004), for example, in his study of citations across all sections of dissertations, demonstrates that electronic engineering articles in English include 8.4 citations every 1,000 words, while philosophy articles include 10.8 citations every 1,000 words.

Additionally, humanities students include citations both in the introduction (5.1/1,000 w.) and the conclusion (4.4./1,000 w.) sections, with no significant difference in their frequency of use. In contrast, engineering students tend to only include citations in introductions (2.3/1,000 w.), with only four occurrences across all 20 conclusions in the corpus (0.2/1,000 w.), a statically significant difference ($Z=6.07$). Thus, it is clear that students in the humanities attribute their assertions more frequently to other voices of authority, which shows how negotiation among different voices is a fundamental aspect of knowledge building in this area.

### Table 4. Intertextuality resources in engineering undergraduate dissertations written in Spanish

<table>
<thead>
<tr>
<th>Citation</th>
<th>Introduction</th>
<th>Conclusions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n. /1,000 w.</td>
<td>n. /1,000 w.</td>
<td>n. /1,000 w.</td>
</tr>
<tr>
<td>Integral</td>
<td>8 / 0.4</td>
<td>0 / 0</td>
<td>8 / 0.2</td>
</tr>
<tr>
<td>Non-integral</td>
<td>43 / 2</td>
<td>4 / 0.2</td>
<td>47 / 1.1</td>
</tr>
<tr>
<td>Total</td>
<td>51 / 2.3</td>
<td>4 / 0.2</td>
<td>55 / 1.3</td>
</tr>
</tbody>
</table>

### Table 5. Intertextuality resources in humanities undergraduate dissertations written in Spanish

<table>
<thead>
<tr>
<th>Citation</th>
<th>Introduction</th>
<th>Conclusions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n. /1,000 w.</td>
<td>n. /1,000 w.</td>
<td>n. /1,000 w.</td>
</tr>
<tr>
<td>Integral</td>
<td>98 / 3.7</td>
<td>91 / 3</td>
<td>189 / 3.4</td>
</tr>
<tr>
<td>Non-integral</td>
<td>36 / 1.4</td>
<td>42 / 1.4</td>
<td>78 / 1.4</td>
</tr>
<tr>
<td>Total</td>
<td>134 / 5.1</td>
<td>133 / 4.4</td>
<td>267 / 4.7</td>
</tr>
</tbody>
</table>

Citations in dissertations in the humanities are 70.8 % integral, compared to 14.5 % in engineering, a statistically significant contrast ($Z=7.79$). This marked contrast echoes Hyland’s (2004) findings for expert writing in English, which show that integral quotations were more frequent in philosophy (64.6 %) than in electrical engineering (15.7 %). Interestingly, these very similar disciplinary patterns of intertextuality across languages and levels of expertise might be demonstrating a fundamental aspect of knowledge building in different areas.

Finally, report resources show that indirect speech is predominant in the humanities (59.9 % of reports), but the only reporting option in engineering (100 %), a statistically significant contrast ($Z=5.61$). That is, undergraduate
dissertations promote in general the paraphrasing of the original wording, while engineering simply does not include direct quotations. Additionally, dissertations in the humanities also include mixed speech (1.1/1,000 w.) both in introductions and conclusions, while this type of report is non-existent in engineering; the contrast is statistically significant (Z=6.80). Hence, students in the humanities tend to use more quotations and a wider variety of speech types in their citations. The predominance of indirect speech is consistent with the findings by Venegas et al. (2013), who found indirect speech to be more prominent across disciplines and reported a strikingly similar proportion of this type of report (62.7 % of reports) in philosophy undergraduate dissertations. As for the textual distribution of reported speech, the humanities show a remarkable consistency across stages: 132 occurrences in introductions, 137 in conclusions. In contrast, engineering dissertations almost exclusively include reported speech in introductions: 48 out of 52 occurrences; the contrast is statistically significant (Z=5.84). (Note that Citation and Report categories are not aggregated in Tables 4 and 5 as they are non-exclusive)

5. Conclusions

This study contributes to understanding how undergraduate students develop and negotiate an authorial voice in their dissertations written in Spanish by means of metadiscourse and intertextuality. Findings show the complex and situated deployment of metadiscourse and intertextuality resources, strategically adjusted according to textual stages, and closely related to legitimated knowledge-making and writing conventions, practices, and expectations across the disciplines.

Sharp disciplinary contrasts shed light on the strong connection between writing choices and epistemological frameworks. Hedges and first-person plural self-mentions are preferred in undergraduate dissertations in the humanities. This finding indicates students’ early understanding of the role of personal negotiation and authority in their fields, as personal interpretation and judgments, together with dialogic engagement with intended readers, are critical in the humanities and social sciences (Hyland, 2010). Additionally, students in the humanities refer to the literature and give authors prominence in their writing more often than in engineering, and combine paraphrasing with direct quotations. This use of intertextuality is consistent with a conception of knowledge-making that emphasizes literature discussion and elaborated theoretical frameworks.

In contrast, engineering students depersonalize their texts, prefer to strengthen their statements, and hide authors and sources from their statements. These metadiscourse and intertextuality choices are related to an epistemological focus on the truth-value of statements and knowledge beyond the authors or writers who have proposed them. The rhetorical rationale of these writing choices is more clearly understood when compared with engineering students’ frequent use of guidance resources; although the student-writer is hidden from the textual surface, their dissertations are especially concerned with signalling their research purposes to their intended readers.

The strategic use of metadiscourse and intertextual resources across dissertation stages is also apparent. Findings show that students in the humanities tend to use more hedges in introductions than conclusions, while conclusions in engineering triplicate the frequency of hedging when compared with introductions. In the case of self-mentions, introductions in the humanities contrast with conclusions in the type of self-mentions deployed, with coincidental self-mentions being more frequent in the former and generic ones in the latter. Regarding intertextual patterns, citation is present in both introductions and conclusions in the case of the humanities, but only in introductions in engineering. These contrasts highlight differences in the rhetorical functions of the sections across disciplines and, ultimately, in the manner they build knowledge upon previous findings—in the case of the humanities, statements in the introduction tend to be moderated and the authorial persona of the writer is more visible; conversely, engineering dissertations are more moderated in their conclusions, carefully placing new pieces of knowledge in their field. Also, dissertations in the humanities build a dialogue with previous research in the field, both when presenting the work and in their closing sections, while this dialogue seems to be relevant for engineering only in terms of establishing the research (introductions).

This study has not accounted for the complete range of meaning-making resources within metadiscourse and intertextuality, even though the categories under study were selected based on their relevance for developing students’ authorial voice. Additionally, although electrical engineering and philosophy are paradigmatic and well-established sub-fields, engineering and the humanities are complex areas that make room for diverse, even competing epistemological frameworks, cultural traditions and *habitus*, and writing expectations. The corpus, although large enough for saturation of occurrences of categories of interest and collected from an influential university in Chile, might be partially restricted to institutional practices that may not be transferable to other settings. Introductions and conclusions, though rhetorically complex dissertation stages, have specific purposes that determine certain writing choices, which might be different in other textual passages. Finally, this study has not accounted for the intentions and meanings student-writers consider when using metadiscourse. Overall, this study has confirmed and expanded previous research on other languages and educational contexts and levels; however, these limitations and restrictions call for discretion when comparing and transferring the results to other corpora and social settings, while also pointing to the need for further studies on the topic.
Lastly, this study provides data on actual students’ situated choices, which could help them to build an academic authorial voice. Identifying these discipline-specific linguistic resources could inform teaching programs and initiatives to support students who must write their undergraduate dissertations in Spanish. In particular, this study has found evidence of a set of discipline-situated and rhetorically oriented metadiscourse and intertextuality resources. As previous research has shown, the teaching of strategies to develop an academic voice has a positive impact on writing quality (Castelló et al., 2011). However, these strategies are not transversal across fields, and explicit writing instruction initiatives need to be consistent with discipline-specific expectations on writing choices. In this regard, this study represents a contribution to writing instruction in higher education as it shows a diversity of writing repertoires that students develop in their dissertations to develop and negotiate an authorial academic voice in Spanish.

Acknowledgements

Support from PMI UCH1501 (Ministry of Education), ANID/PIA/ Basal Funds for Centers of Excellence FB0003, and FONDECYT 1191069 (Agencia Nacional de Investigación y Desarrollo) is gratefully acknowledged. Cristian Sandoval assisted in the statistical analysis. The contribution of Claudia Castro and Sebastián Vargas Pérez, as assistant researchers in the early stages of this project, is also acknowledged.

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