Reading APPRAISAL: Mexican Health Science Majors' Evaluation of and Ideologies about Different APPRAISAL Patterns in Scientific Texts[1]

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Abstract

The goal of this paper is to describe a group of adult Mexican English learners' ideologies about different APPRAISAL patterns in English-language scientific texts. APPRAISAL is a descriptive framework of the linguistic resources used to convey feelings and attitudes (Martin & White, 2005). This topic is particularly interesting in EAP (English for Academic Purposes)/EFL (English as a Foreign Language) contexts where L1 academic language ideologies proscribe the use of APPRAISAL features in scientific prose and where such proscriptions are followed in some disciplines and national contexts. Spanish-speaking countries often exemplify this. Forty Mexican undergraduate EFL students majoring in Health Sciences read two versions of the same short paragraph with different APPRAISAL resources. They were asked to say which of the two versions corresponded to a published research article and why. Evaluation patterns in their answers were analyzed using the attitude system of the APPRAISAL framework (Martin & White, 2005). The prevalent types of attitudes were valuation and complexity. While most students preferred the more personal text, a minority chose the more impersonal one. The latter group's attitude constructs a language ideology that equates scientific rigor and technicality with impersonal prose; they also show less awareness of the relationship between APPRAISAL resources and writing for specialized audiences.

Resumen

El objetivo de este artículo es describir las ideologías lingüísticas de aprendientes adultos de inglés acerca de pautas diferenciadas de VALORACIÓN en textos científicos en inglés. La VALORACIÓN es un modelo descriptivo de los recursos lingüísticos usados para transmitir sentimientos y actitudes (Martin & White, 2005). Es un tema de interés en contextos de inglés como lengua extranjera donde las ideologías lingüísticas nativas proscriben el uso de recursos valorativos en la prosa científica y en los cuales estas proscripciones son seguidas en alguna medida. Los países de habla hispana frecuentemente constituyen un ejemplo. Cuarenta estudiantes de inglés de pregrados en Ciencias de la Salud leyeron dos versiones de un mismo párrafo creado para este fin, con recursos valorativos distintos. Escogieron cuál de las dos versiones correspondía a un artículo de investigación publicado y justificaron su elección. Se analizó la actitud en sus respuestas desde la VALORACIÓN. Los tipos predominantes de actitud fueron la valuación y la complejidad. Aunque la mayoría de los estudiantes prefirieron el texto más personal, una minoría importante eligió el texto más impersonal. Las pautas de actitud del segundo grupo muestran una ideología que equipara el rigor científico y el estilo técnico con la redacción impersonal. También muestran menos conciencia de la relación entre la VALORACIÓN y la escritura para audiencias especializadas.

Introduction

Academic reading in English as an additional language at the college level and beyond, typically covered under English for Academic Purposes (EAP) is an important, yet under-researched, skill (McGrath et al., 2016). By contrast, the use of Systemic Functional Linguistics (SFL) in K-12 schools to promote reading comprehension has been the subject of extensive research and development efforts. SFL is a school of linguistics with important applications to language teaching (Perales-Escudero, 2018). Per Halliday and Matthiessen (2004), one of its main principles is the trinocular perspective on language. This perspective sees language as sets of choices that construct the topic and social purpose of the communicative act (ideational meanings), the identities, relationships and attitudes of the participants (interpersonal meanings, covering evaluation), and the continuity of discourse to form whole conversations/texts (textual meanings). The main focus of SFL reading research has been on the effectiveness of Reading to Learn (Rose, 2017). There has also been research on the development of other SFL-based reading interventions, different from Reading to Learn, much of which has also focused on classroom discourse and teacher education (Moore & Schleppegrell, 2014; Moore et al., 2018). There is also extensive SFL research on the features of academic texts, some of which have made claims about which specific features can cause comprehension difficulties (Hao, 2018).

Nevertheless, there seems to be less SFL research examining college-level EFL students' responses to academic texts as a way into their reading processes. This is despite the potential of such research to probe learners' understandings of how texts work, which is one of the three ways in which Gerot (2000) suggests

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that SFL can be used to research reading processes. As indicated by Nergis (2013), reading academic texts is a very complex network of different components, linguistic and otherwise. This paper focuses on one such component, namely EFL learners' ideologies about evaluation in academic texts, specifically as evaluation is construed by the APPRAISAL framework of SFL (Martin & White, 2005).

A focus on this area of meaning is important in EAP reading because evaluative language is sensitive to cross-cultural variation in written texts (House, 2006). Accordingly, less experienced L2 readers may try to apply L1-specific understandings of evaluation to L2 texts where evaluative language operates differently (Perales-Escudero, 2013). From the similar perspective of voice, and using reading tasks like the one in this paper, Chang (2016) has found that Taiwanese doctoral students' ideologies about voice in English-language academic texts do not necessarily correspond to the intended effects of voice devices in such texts. Jou's (2016) SFL-inspired study of voice awareness also found little awareness of English voice devices and their effects in English-language academic texts among undergraduate EFL learners.

These findings illustrate that not all EFL readers will approach interpersonal meanings with the same assumptions about the ways such meanings function in texts. Misinterpretations might thus occur when readers' culturally-situated ideas about evaluation and its textualization are at variance with those encoded in culturally-situated texts. If socially distributed, these ideas can be considered language ideologies in the sense of speakers' shared, naturalized, language-focused beliefs, values, and feelings about language (Fairclough, 2003; Kroskrity, 2019; Vessey, 2017). Also, for Kroskrity (2016, WEB), language ideology includes "speakers' often-partial awareness of the form and function of their semiotic resources" (n.p.). An examination of APPRAISAL patterns in undergraduate EFL readers' reactions to evaluative texts is relevant for studying language ideologies since evaluation is an important linguistic means for textualizing them (Thompson & Hunston, 2000). It is through analyzing evaluation patterns that ideological value-systems can be characterized (Fairclough, 2003; Thompson & Hunston, 2000).

Examining language users' reactions to different APPRAISAL patterns has been identified by Thompson (2014) as an area of interest in APPRAISAL research. Such examination can be particularly relevant in EFL contexts where L1 language ideologies proscribe the use of APPRAISAL resources of attitude (i.e., evaluative adjectives) and engagement (i.e., first-person forms, modal verbs). Spanish-speaking countries exemplify that type of context. Some well-known manuals explicitly state that academic Spanish must be neutral and objective (Regueiro Rodríguez & Sáez Rivera, 2011). As discussed by García-Negroni (2008), academic Spanish has been prescribed as "*informativo, transparente, sin marcas de subjetividad, polifonía o argumentación*/informative, transparent, without any markers of subjectivity, polyphony or argumentation" (p.10). In some countries, such as Cuba, the instructions to authors of most journals proscribe the use of the first person (Prieto Acosta, 2015). These proscriptions are reflected in the literature on Spanish-language Medical Research Articles (MRAs), some of which also shows that English MRAs are different.

Using White's (2003) version of APPRAISAL, Pérez-Llantada (2011) compared the use of selected metadiscourse features, including "we", across sections of biomedical RAs in NS English , NNS English (Peninsular Spanish L1), and NS Peninsular Spanish. She found a greater use of "we" in combination with evaluative lexis and possibility modals in the NS English MRAs' introductions and discussions than in the corresponding sections in the Spanish-language MRAs or NNS English MRAs. These findings about "we" and modals in Spanish and English align with those of other English-L1, Spanish-L1 and contrastive metadiscoursal studies (Belles-Fortuño & Querol-Julián, 2010; Fryer, 2013; Salas, 2015; Stebletsova and Torubarova, 2019).

These findings indicate that certain APPRAISAL resources, like modals, first-person forms, and possibly evaluative adjectives or verbs, differ in frequency across medical Spanish and English. These differences in the use of APPRAISAL resources across Spanish and English might be a result of the Spanish language ideologies outlined above and the turn toward a rhetoric of self-promotion in English-language publications (Bondi, 2014), which may constitute a different language ideology. Then, the possibility arises that Spanish-speaking, undergraduate EFL learners' language ideologies might color their reading of English-language academic texts containing the types of APPRAISAL resources discussed above. Against this backdrop, this study addresses the following questions:

1. *How do Health Science majors evaluate two texts with very similar ideational content but different APPRAISAL patterns?*

2. *What do attitude patterns in participants' output reveal about underlying language ideologies regarding scientific English?*

These questions are relevant to EAP instruction in light of the documented difficulties experienced by Spanish-L1 undergraduates when processing multiple voices and evaluation in written discourse in Spanish (Arnoux, Nogueira & Silvestri, 2002; Tosi, 2017) and English (Perales-Escudero, 2013). These difficulties might stem partially from L1 language ideologies proscribing "*marcas de subjetividad, polifonía o argumentación* markers of subjectivity, polyphony or argumentation" (García-Negroni, 2008, p. 10). If so, exposing these ideologies and critically reflecting about them might be relevant for EAP teaching to Spanish-L1 learners.

Theoretical Framework

APPRAISAL is a discourse-semantics system in the architecture of SFL. The account here is based on Martin and White (2005) and Hood (2010). Within APPRAISAL, there are three sub-systems: attitude, engagement, and graduation. Attitude comprises the resources used to express feelings, evaluate things, and evaluate human behavior. These three areas of attitude are called affect, appreciation, and judgment.. Attitude corresponds to what is generally referred to as evaluation in other approaches (Thompson & Hunston, 2000). Appreciation and judgment are "institutionalized feelings" as they are infused with the values of specific social groups (Martin & White, 2005). All three attitude types carry either positive (+) or negative (-) attitudinal polarity. Each type is further divided into subtypes of appreciation, judgment, and affect. Due to the relevance of appreciation for this analysis, only subtypes of appreciation are explained below.

Appreciation refers to the evaluation of things. The subtypes of appreciation are impact, quality, valuation, balance, and complexity. Impact is realized when the evaluation is a reaction, as in "this movie was gripping." It answers the question "did it grab me?" Quality is also a reaction, but the question it answers is "did I like it according to a particular standard?" Valuation is realized when something is evaluated as important, appropriate, or original; it answers the question "was it worthwhile?" Balance is about evaluations such as harmonious, balanced, uneven, and logical; it answers the question "did it hang together?" Complexity is about evaluations such as clear, arcane, precise, simple, complex, and so on. It answers the question "was it hard to follow?" (Martin & White, 2005; Ngo & Unsworth, 2015).

Martin and White (2005) also propose a division of attitude into inscribed and invoked types. Inscribed attitude is found in explicit and unequivocal instances of evaluation or feeling, typically but not exclusively realized by adjectives. By contrast, invoked attitude needs to be interpreted from ideational material, the co-text, engagement and graduation resources (Hood, 2010), and careful considerations of the values shared by a community of language users. The co-text can color other segments with attitude via the prosodic pattern of domination, whereby an evaluative segment extends its scope to other segments (Martin & White, 2005). Further, evaluations of things or activities in moral terms, which are instances of inscribed appreciation, can be coded as invoked judgment as they imply an evaluation of the human beings behind them. Conversely, evaluations of people in aesthetic terms can be coded as invoked appreciations. The entity being evaluated by an attitudinal segment is called the appraised.

The sub-system of engagement models the resources used to represent and (dis)align different voices with one another and with the propositions in the text. It includes resources classified elsewhere as modality and evidentiality (Kaplan, 2004). From an engagement point of view, utterances whose lexicogrammar presents propositional content as an assertion, without any representation of other perspectives, are called bare assertions or monogloss. By contrast, utterances including resources signaling that the proposition is one among others and responds to a dialogic background are heterogloss. Heteroglossic utterances can function to expand or contract dialogic space. Expansion operates in utterances that lower the authorial voice's commitment to its propositions or those of others presented by the authorial voice, thus leaving readers at liberty to (dis)align themselves with the propositional content. This is typically achieved by using modals and reporting verbs that do not endorse the reported propositions. Contraction operates in utterances where the authorial voice deploys resources that acknowledge other voices, aligns itself with them, and/or shows its commitment to the proposition being advanced. This involves a variety of resources, such as adversative connectors that show counterexpectancy, negations and verbs amplifying the authorial voice's commitment to propositions. First-person forms may operate to either expand or contract dialogic space depending on the co-text (Martin & White, 2005). Martin and White (2005) show that certain resources of engagement, like counter-expectancy markers and denials, invoke attitude. Hood (2010) also shows that modals in heterogloss utterances can invoke attitude.

Graduation models the resources used to scale attitude up or down. The relevant mechanism of graduation for this study is force: intensification.[3] Intensification refers to linguistic exponents that scale the strength of inscribed attitude either up/down or, by their mere presence, infuse evaluative meanings to experiential categories and thus invoke attitude (Hood, 2010). For example, according to Hood (2010, p. 92) the choice of verb when discussing a study invokes attitude when intensified, as in "the study investigates" rather than "the study looks at". From the perspectives of Hyland (1998) and Hunston (2003, as cited in Thompson, 2014), "investigates" is an epistemic verb that thus functions as positive evaluation of the study's scientific quality. By contrast, "looks at" does not embody the epistemology of science and therefore does not increase the scientific merit of its subject ("the paper").

Methodological Framework

This section presents the study's methodological components, namely its setting and participants, its instruments and materials, and its data collection and analysis procedures, in that order.

Setting and participants

The study was conducted with 40 undergraduate ELLs enrolled in the College of Health Sciences of the University of Southeastern Mexico (USM, a pseudonym). The students were taking EFL courses within their college at levels 7 and 8, which are the most advanced levels offered by USM and correspond to the B2-C1 levels of the Common European Framework of Reference for Languages (CEFRL). They were studying for degrees in Medicine, Nursing, and Nutrition Science. Importantly, their EFL courses are not EAP courses but general English. EAP is not taught at USM, and its EFL courses do not include training in reading to learn or any form of discourse analysis. Nevertheless, the students read some textbooks and research papers in English in some of their content courses.

Instrument and Materials

The instrument for this study was what I call an interpersonal text comparison task. It consisted of a form containing two interpersonally different versions of the same text. Sameness here means that the two texts shared mostly same experiential meanings, and interpersonally different means they varied in APPRAISAL resources. The form also contained instructions to read and compare the two texts, two questions, and a glossary of potentially unknown words. Question one asked participants to choose which text was published in a prestigious ecology journal and which was a modified version. Nothing was said about the type or purpose of the modifications. Question two asked them to explain why they thought so. Below, the process for designing this form is presented.

I created two short, made-up texts about using drones to investigate jaguar population distributions, hereafter Text A (68 words) and Text B (69 words). In terms of its macro-genre, the texts are abstracts from a research article. The topic corresponds to ecology, but no claims are made that either text is representative of APPRAISAL patterns in ecology abstracts. The reason to write a text purportedly from a different discipline is purely methodological: I chose to write on this topic rather than a medical one in order to control background knowledge. A medical topic could have led participants to answer the questions with a basis on their content knowledge rather than on their ideas and values about published academic English. Some readers may argue that I could have selected and modified a MRA excerpt and simply asked participants to choose which one sounded more academic or corresponded to the style of a published paper. I did not do this for two reasons. First, an unpublished pilot study that I conducted using that procedure still produced several responses that based their choices on content knowledge or attitudes toward ideational meanings. Second, for this, more refined instrument, I chose to follow Verschuren's (2012) advice that, when investigating ideology in language use, "subjects cannot be asked about the patterns of meaning that make up ideology" (p. 17) because such explicit questions can produce superficial beliefs or monitored performances. The texts are below.

> *Text A. Current techniques for assessing the presence and distribution of endangered species in specific geographical areas are limited as they may fail to capture animal roaming patterns. We investigated the effectiveness of a new technique, randomly distributed drones, to describe jaguar population distribution in tropical forests. The results*

[3] In SFL, the use of a colon indicates that the term to the right of the colon is a subsystem of the one on the left.

show our technique to be useful at estimating the current jaguar population; it might yield more accurate data than other methods.

Text B. At present, there are several techniques used to assess the presence and distribution of endangered species in specific geographical areas. These techniques do not capture animal roaming patterns. This paper investigated the use of a technique, randomly distributed drones, to describe jaguar population distribution in tropical forests. The results are that this technique works for estimating the current jaguar population because it yields enough data to achieve a description.

The introduction and problematization of the topic in Text A include inscribed appreciation and modals of dialogic expansion ("current techniques… limited… ," "they may fail…"), whereas Text B includes graduation and dialogic contraction ("several techniques", "do not capture") that invoke appreciation. The methods are presented heteroglossically in Text A ("we investigated") with a head noun in the nominal group following "investigate" that invokes appreciation ("effectiveness"). By contrast, Text B uses an impersonal bare assertion and the head noun in the nominal group is more neutral ("use"). The presentation of results is proclaimed in Text A (the results show…") with a process ("show") that is also intensified vs. the more neutral "are" in Text B and thus invokes attitude. This is combined with heteroglossically expansive markers of entertain ("our technique", "might yield"), appreciation ("useful") and an intensified appreciation ("more accurate"). In contrast to Text A, the results in Text B are presented impersonally with bare assertions ("the results are that this technique works…"). While there is appreciation ("works," "achieve") it is not intensified. Graduation is confined to quantification ("enough data").

These divergences were driven by my intention to infuse Text A with features that the literature has identified as: a) more common in English MRAs than in Spanish MRAs, and/or b) proscribed in academic Spanish. Conversely, Text B mostly adheres to the standard of neutrality and monogloss prescribed for academic Spanish and found to some extent in Spanish MRAs. The purpose of this divergence and the questions was to elicit different appreciations of the texts that could lead to the identification and description of language ideologies.

Data Collection Procedures

The entire instrument (the texts, the task prompt, the questions, and the glossary), went through three rounds of piloting. The first was done by a colleague with expertise in SFL, who was asked to assess the degree of ideational equivalence between Texts A and B and comment on the clarity and relevance of the task and the questions. The second was done by three of the five teachers in charge of the groups where the participating students were enrolled. They were given a form to assess the texts, the prompt, the questions, and the glossary. The third was done by five students, who were also given the assessment form in addition to being asked to complete the task. Only minimal changes were performed on the final instrument such as the inclusion of one vocabulary word in the glossary and slight editing of Texts A/B. The Director of USM's Foreign Language Center was contacted to ask for permission to administer the instrument and for help in selecting the sample of participants in levels 7 and 8. Because of the nature of the curriculum and administrative restrictions at USM, only students in years 4-5 of their studies can enroll in these advanced levels, so all students were nearing the end of their degree programs. The Director put out a call for participation to teachers of these levels using a WhatsApp© group. Five teachers agreed to participate. I went to their classes on the days indicated to me, presented the study to students as one focused on investigating their ways of reading scientific texts in English, and asked for their consent. Forty students agreed to participate and signed consent forms. The instrument was then administered in situ, as a hard-copy, right before the beginning of each class. I explained to the participants that I could not answer questions about the instrument, and none were asked. The participants answered the questions using pencil and paper. No time limit was set, but no participant took more than 10 minutes to complete the task.

The Corpus and its Analysis

The small corpus for this study consists of participants' answers in Spanish to question two, which asked them to justify their choice of a text as published or modified. There are 40 such answers (one per participant), totaling 998 words. Answers to question one were not included in the corpus, since participants only needed to write the letter of each text to complete a sentence saying which one was published and which one was modified. The shortest answer is eight words long, and the longest is 69 words long. The average length is 24.9 words. The corpus, instrument, and annotation manual (see below) are available upon request and in the metadata.

In agreement with published studies (Fuoli, 2018; Taboada et al., 2014), I believe that validity, reliability, and replicability issues need to be addressed explicitly in APPRAISAL studies. This need arises from the fuzziness and underspecification of some APPRAISAL categories in the literature (Fuoli, 2018), the polysemous and highly context and co-text sensitive nature of some APPRAISAL resources (Fryer, 2013; Martin & White, 2005; Pascual, 2014), and the high cognitive demands of manual coding (Fuoli, 2018; Fuoli & Hommerberg, 2015). This is not to say that I believe objectivity or generalizability in APPRAISAL analysis can be achieved. Any APPRAISAL study must carefully consider the contexts of situation and culture as well as the co-text and the influence of the analyst's own subjectivity as these may infuse the same linguistic exponents with different APPRAISAL values across different texts, different sections of the same text, and even different moments in the analysis (Fryer, 2013; Martin & White, 2005). The intent of this procedure is thus not to generalize the results or the coding decisions but to ensure that the analysis is valid, reliable, and replicable for the specific corpus under investigation.

To ensure validity and reliability of the identification and coding of APPRAISAL features, I used the following procedure (Fuoli, 2018). First, from a preliminary reading of the corpus and a consideration of the research questions, I determined that the analysis would be discursive rather than lexicogrammatical (i.e., I did not quantify the different types of lexis and grammar realizing attitude) and limited to attitude, both inscribed and invoked. Markers of engagement and graduation were used in order to identify and annotate invoked attitude (Hood, 2010; Martin & White, 2005), but no full, detailed annotation or analysis of engagement or graduation was performed.

Then, I selected Microsoft Excel© as the tool due to its ease of use and the small size of my corpus. Next, I drafted an annotation manual based on the coding of twenty answers (half the corpus), with iterative revisions and adjustments to the manual and my coding based on close reading of the corpus and of Martin & White (2005), while considering context and co-text. I agree with Fuoli (2018) that the drafting and publication of this type of manual is the main way "to account for all decisions and provide explicit and detailed guidelines that other researchers can review and use" (p. 246). Other published studies such as Taboada et al. (2014) have already used manuals of this kind.

This manual guided my annotation of the remaining half of the corpus. A colleague who wrote a dissertation using APPRAISAL used the manual to annotate twenty randomly selected answers in order to calculate agreement. We agreed in 76% of the cases in terms of both the resources we identified for annotation and the way we annotated them. The negotiation of the remaining disagreements was used to make changes to the manual and recode the corpus until 100% agreement was reached. Other measures of inter-rater reliability, such as F-scores, were deemed unnecessary due to the small size of the corpus. The manual, like the corpus, is in the metadata and is also available upon request. Some guidelines from the manual are discussed below in order to help readers make sense of annotation decisions.

- In general, the parameters of the task/discourse and the characteristics of the participants guided my choice of +/- polarity in combination with domination. In connection with the first point (task/discourse), I followed Hunston (2003, as cited in Thompson, 2014) in considering that "whatever is represented in the text as contributing to the goals of the research is to be taken as positively evaluated" (p. 51). Here of course what is at issue is the participants' thoughts about the language features that contribute to the status of a paper as published in a prestigious scientific journal, but I believe Hunston's point is applicable when deciding on what counts as attitudinal in this corpus and what kind of +/- polarity it has. For example, a participant who chose text A as the published one evaluated it as "no tan específico/not so specific" and "ambiguo/ambiguous" and then wrote in the next clause that this "atrajo más mi atención/drew my attention more." While these adjectives ("not as specific," "ambiguous") would normally be coded as –attitude:complexity, I chose to code them as invoked +attitude:complexity for two reasons. First a domination pattern seems to extend anaphorically from the invoked +attitude:impact in the adjacent clause. Second, the participant, as a medical student nearing the end of her undergraduate studies, might be cognizant of the fact that, sometimes, ambiguity is valued as strategic in scientific publications (Myers, 1996), which is also indicated by the fact that hedging is an acceptable and useful feature of scientific publications in English. Other adjectives coded per Hunston's advice as +attitude:valuation were "technical" and "scientific". Had I found instances of negative attitudes in the co-text (i.e., "demasiado técnico/too technical" or "jerga científica/scientific jargon"), I would have coded these adjectives as –attitude:valuation, but there weren't any such instances.

- Both inscribed and invoked attitude were annotated according to the subtype of attitude they realized (impact, valuation, balance, complexity); invoked attitude was thus not counted separately from inscribed attitude.
- In segments such as "Text B uses current terms", the Epithet was annotated as inscribed attitude appraising the Thing in the second nominal group, and the whole predicate was annotated as invoked attitude appraising Text B.
- The dictionary *Diccionario del Español de México* (DEM, El Colegio de México, n.d.), a corpus-based dictionary of Mexican Spanish produced by El Colegio de México was used as a guide to retrieve the attitudinal polarities and sub-type of attitude of certain adjectives; examples included *neutral, formal*, and *elaborado/complex*.
- When lexicalized inscribed attitude was found within larger segments realizing invoked attitude, both were coded separately.
- The appraised was identified in each instance of attitude, either invoked or inscribed, even if this meant searching the co-text in order to retrieve it.
- Instances of evaluation of semiotic elements (the whole text, aspects of its wording or content) in moral terms were coded as inscribed appreciation, unless there was an explicit reference to the author in the co-text, in which case they were coded as judgment (Thompson, 2014).
- Denials with adjectives in the co-text were interpreted as invoked attitude, e.g., "no es conveniente usar may o might/it is not convenient to use may or might" was coded as –attitude:valuation focused on the use of these modals.
- The prosodic pattern of domination (Martin & White, 2005) was used to determine +/- polarity where applicable.
- Following Hood (2010), I read intensification in processes such as *demostrar/demonstrate* in "demuestra los resultados de su investigación/it demonstrates the results of its research" (rather than *presents*, which wouldn't be intensified) as instances of invoked attitude.
- Also after Hood (2010), I coded the intensification of proposals via modulation with modals of obligation (e.g., "uno debe considerar las técnicas previas/one must consider previously-published techniques") as instances of invoked attitude.

The purpose of presenting these guidelines is neither to elicit readers' full agreement with the annotation decisions nor to generalize them. Rather, the purpose is to make the procedure transparent and replicable. After completing APPRAISAL annotation, I used close reading to search for patterns across the lexical items realizing attitude, the types and polarities of attitude, and the appraised in order to explore what entities were being evaluated with what kind and type of attitude. This involved a re-coding of the appraised. Of course, almost all the appraised entities are Text A or Text B as a whole or different aspects of the texts. Exceptions are a few judgments of the author and readers and one appreciation of journals. Then, the recoding involved grouping similar aspects together in six types of appraised: the text as a whole, language, content, structure, author/reader, and journals. This grouping does not mean that I subscribe to a view of language as being different from content or structure; it merely intends to capture thematically the entities as textualized by the participants. Thus, appraised use of words or first-person pronouns (e.g., "text A's words are more technical", "It is not appropriate to use 'we' in academic publications"), and the like were re-coded as "language" in the "appraised" column of my Excel document. Appraised aspects of content such as "Text B has better explanations" or "Text A is the published one because it explains its methods" and the like were recoded as "content". When the organization of the text was evaluated, as in "Text A has better structure", this was coded simply as "structure".

After such re-coding, I searched for patterns of association between attitudinal values (e.g., impact, complexity, valuation), attitudinal polarity (+/-), and types of appraised. Together, these patterns were interpreted in light of the literature about academic Spanish language ideologies in order to identify ideologies textualized in the participants' responses to APPRAISAL differences in the two texts. This type of interpretive close reading after annotation has been used in prior APPRAISAL studies (e.g., Fuoli & Hommerberg, 2018).

Results

Twenty-one participants (52.5%) chose Text A as the published version, while nineteen chose Text B (47.5%). In total, I found 140 instances of attitude, 77 coming from participants who chose text A, and 63 from those who chose Text B. I will first discuss the attitude patterns in the answers of the participants who chose Text A, then those pertaining to Text B. In both cases, I first provide a quantitative overview and then discuss examples qualitatively with a focus on ideology.

The 77 instances of attitude in participants choosing text A were distributed as shown in Table 1.

+app: valuation	-app: valuation	+app: complex	-app: complex	+app: balance	+app: impact	+judgment
34/44.1%	8/10.3%	22/28.6%	3/3.9%	1/1.3%	2/2.6%	7/9.1%

Table 1: Types of attitude in the answers of participants who chose text A

The most prevalent type of attitude is appreciation, with very few instances of judgment. Within appreciation, valuation, and complexity are the most prevalent, with only two instances of impact and one of balance. Only fourteen instances of attitude are negative, and those are focused on text B. In other words, negative attitudes toward B were used to justify the choice of A in fourteen instances. Table 2 shows the appraised.

Text	Language	Content	Structure	Author/Reader
18/23.4%	32/41.5%	19/24.6%	1/1.3%	7/9%

Table 2: Types of appraised in the answers of participants who chose text A.

The values of appreciation and complexity had to do mostly with appropriateness in terms of the text's technicality or scientific merit, and with clarity. This is shown in the examples below. Invoked attitude is underlined and inscribe attitude is in boldface.

> Example 1. *Tiene palabras más técnicas y científicas y demuestra los resultados de su investigación. El texto B tiene palabras más simples*/It has more technical and scientific words, and it demonstrates the results of its research. Text B has simpler words.

In example 1, Text A's words are evaluated explicitly and positively as being more technical and scientific (+valuation), in opposition to the words in text B, which are evaluated negatively as simple (-complexity). While "simple" might be positive in other contexts, here the contrast with the technicality that is appropriate in a published text (A in the participant's opinion) and the intensification with "más/simpler" is grounds to interpret that "simple" is being proffered with a negative value. It is also the case that "simple" can invoke negative attitude in Mexican Spanish ("simple", n.d.).

Such appreciations of Text A's wording as technical and/or scientific occur four more times in four different answers. Since the wording that varies across the two texts consists almost exclusively of APPRAISAL resources, it can be inferred that it is these resources which are being described as more technical/scientific words in the participants' answers.

Example 1 also shows one instance of invoked attitude that appraises the content as appropriate in terms of scientific values: However, even this seemingly content-focused appreciation might be a reaction to APPRAISAL differences. Both texts present results, with the difference lying in the verb used to introduce them. "Show" in Text A and "be" in Text B. The use of "show" likely signaled to this participant a clearer demonstration of results since it implies the presence and commitment of the authorial voice. Similar content-focused appreciations that on closer reading might be reactions to APPRAISAL differences occurred 20 more times. Example 2 illustrates this as well as other appreciations focusing on language or the text as a whole.

> Example 2. *El texto A indica el propósito del método realizado y lo describe… Mientras que el texto B es un texto de divulgación, no describe lo realizado a como debería ir un artículo*./Text A indicates the purpose of its method and describes it … By contrast, text B is a popularization text and doesn't describe the procedures the way an article should.

In example 2, this participant appraises Text B as a popularization text. I interpret "popularization text" as an instance of negative invoked attitude for three reasons. First, the adversative conjunction "mientras que" introduces a contrast with the previous sentence, which appraised Text A positively as having proper methods. Second, the next clause to the right invokes negative attitude (e.g., no describe lo realizado a como debería ir un artículo/it doesn't describe the procedure the way an article should) that prosodically dominates the preceding segment. Third, the task required a decision about which text was published in a prestigious scientific journal; in that light, popularization flags an invoked evaluation of Text B as less scientific or prestigious. Since the variation in the description of procedures lies in the personal vs. impersonal choice of subject (we vs. this paper) and the use of an attitude-infused head noun in the nominal group (effectiveness) vs. a more neutral one (use), it can be inferred that this and other participants conveying similar appreciations think that using APPRAISAL resources is appropriate in scientific articles.

The next group of examples textualize attitude by appraising language and/or content, but in both cases the attitude appears to be responding to modals, with negative evaluations of their absence and positive evaluations of their presence.

> Example 3. *Creo que el texto B expresa una opinión acerca de una única técnica efectiva para determinar una conclusión lo cual me parece que excluye a los demás. Por otro lado, el texto A ofrece una alternativa a las demás opiniones la cual contribuye a las técnicas ya existentes. Al formular una hipótesis, uno debe considerar las técnicas previas para alcanzar mejores resultados./*I think text B expresses an opinion about one single effective technique to determine a conclusion, which I think excludes others. By contrast, text A offers an alternative to other opinions that contributes to existing techniques. When formulating a hypothesis, one must consider prior techniques in order to achieve better results.

The invoked judgments of propriety in Example 3 align strongly with heteroglossic values as the participant appraises positively the inclusion of other voices and the positioning of authorial claims as alternatives (dialogic expansion). It is likely that these responses are reactions to the presence of heteroglossic modals in Text A and the fully monoglossic nature of Text B.

In example 4, the evaluative focus is unmistakably directed to "might" in the last sentence of Text A versus a bare assertion in Text B.

> Example 4. *En el texto B la última oración hace una afirmación del método que en el texto A no se asegura./*In text B the last sentence makes an assertion about the method that is not asserted in text A.

The participant evaluates positively the fact that text A does not use a bare assertion but a modalized proposal with "might" when evaluating the effectiveness of the technique being tested; conversely, the use of a bare assertion in Text B is appreciated negatively. These attitudinal polarities are suggested by the fact that this participant chose A as the published text and justified his/her choice in these terms. The participant thinks that modalization is appropriate in published scientific articles, which suggests he might value dialogic expansion. Similarly, the participant who wrote the answer in Example 5 appreciates Text A positively because of its ambiguity. While she/he did not indicate which specific segment is perceived as ambiguous, it could well be "might" as in the previous example.

> Example 5. *No es tan específico, es un poco más ambiguo, atrajo más mi atención./*It is not as specific; it is a little more ambiguous; it caught my attention more than the other text.

Finally, the next two examples show appreciations focused on complexity and also sophisticated, audience-oriented beliefs regarding clarity.

> Example 6. *La terminología o conceptos usados en B parecen más fáciles de comprender para el público en general …*/The terms or concepts used in B are easier to understand for the general public ...

> Example 7. *Porque el texto A está más explicado pero utilizando un lenguaje más dirigido a las personas que entienden la situación, en este caso los biólogos y la B a mi parecer es mejor entendible, es un texto con palabras más entendibles en inglés para todas las personas*/Because text A has more explanations but using a language addressed to the people who understand the situation, biologists in this case, and I find B more comprehensible, it is a text with English words that are more comprehensible to all people.

The participant who wrote Example 6 chose text A as the published version on the grounds that the terms in B are easier to understand for the general public, which implies that the terms in A are appropriate for a

scientific audience. Similarly, in Example 7 both texts are evaluated positively in terms of their clarity, with the qualification that clarity depends on the target audience for each text. Again, since there is very little variation in content words, it seems that what these participants understand as terms for specialized readers are the linguistic exponents of APPRAISAL.

Another set of answers appraised the use of first-person markers in Text A positively because they show clear authorship:

> Example 8. *Debido a las expresiones* "we investigated the effectiveness" *y* "this paper investigated" *me da a entender que el texto A representa la expresión de quienes publicaron el artículo mismo que explican cómo usar los drones*/Because of the expressions "we investigated the effectiveness and "this paper investigated," I understand that text A represents the expression of those who published the paper and explain how to use the drones.

All in all, the participants who chose Text A as the published version value APPRAISAL resources positively as technical and scientific, open to alternatives, with an appropriately explicit authorial presence, and clear for a specialized audience. As such, the ideology about scientific English in this group of participants is one that values the textualization of dialogue with other voices and the use of audience-appropriate language. Of note is that relatively few instances of attitude and participants (less than a third) make explicit metalinguistic references to APPRAISAL language, and at least one metalinguistic comment was not directed at APPRAISAL. The next paragraphs turn attention to the attitude in the answers of participants who chose Text B, which is summarized in Table 3. This Table has fewer columns because some values were absent in those answers.

+app: valuation	-app: valuation	+app: complexity	+app: balance	+app: impact	+judgement	+affect
28/44.4%	16/25.4%	13/20.6%	2/3.2%	1/1.5%	2/3.1%	1/1.5%

Table 3: Types of Attitude in the answers of participants who chose text B.

As with participants who chose Text A, the prevalent type of attitude is appreciation, with only two instances of judgment and one of affect. Also similarly to the first group, valuation and complexity are most common, with only two instances of balance and one of impact. Sixteen instances of attitude are negative, a much higher proportion than in the first group (25.4% vs. 18.1%), and those are focused on Text A. That is, negative attitudes toward A were used to justify the choice of B. These negative attitudes tended to focus on Text A's language. Table 4 shows the appraised in this group of messages. There is no reader column because readers were not appraised by these participants.

Text	Language	Content	Structure	Author	Journals
7/11.1%	36/57.1%	14/22.2%	3/4.7%	2/3.1%	1/1.5%

Table 4: Types of appraised in the answers of participants who chose text B.

The proportion of attitude directed to language is higher than in the first group (57.1% vs. 41.5%). As shown in the examples below, many of these instances are positive appreciations of Text B as formal and, thus, scientific. Conversely, Text A was appreciated as informal and unscientific.

> Example 9. *El texto A tiene un lenguaje no formal y el texto B es formal y científico*/Text A has non-formal language and Text B formal and scientific.

Crucially, ideas about scientificity or technicality appear to be connected to impersonality as shown in Example 10.

> Example 10. *El texto B presenta una estructura más elaborada, realizando la redacción en tercera persona a diferencia del texto A que utiliza menos terminología técnica*/Text B displays a more complex structure with third-person wording, unkile text A which uses fewer technical terms.

In this example, text B is appreciated positively in an intensified manner as having a more complex structure. Elaborado in Mexican Spanish has positive connotations of appropriate complexity and harder work (El Colegio de México, n.d.) that contrasts with the connotation of excessiveness in the English word "elaborate" (Collins, n.d.). In the participants' view, this complexity is the product of writing impersonally, in the third person. This third person reference takes up the use of "this paper" in Text B instead of "we" in

Text A. Tellingly, the next instance of attitude following the comparative phrase "a diferencia de (unlike)" appreciates Text A as using fewer technical terms, which contrasts with the intensification in "more complex" that is attributed to impersonality. This shows that, for this participant and probably for others who chose text B as more technical, technicality might be their way of referring to impersonality. Impersonality also surfaces as a value in the next two examples.

Example 11. La *versión del texto A incluye muchos aspectos que aparentan una apropiación intensa de la investigación. En el texto B el lenguaje utilizado es neutral*/Version A includes many elements that display an intense appropriation of the research. Text B uses neutral language.

Example 12. *Porque en el primer artículo hablan de "nosotros" y creo que las revistas profesionales no se expresan así* /Because in the first article they speak of "we" and I think professional journals do not allow that kind of expression.

Example 13. *Me parece mejor no utilizar la narración en primera persona para un artículo de investigación. También creo que no es conveniente utilizar las palabras* may *y* might/I think it is best not to use first person narratives in a research article. I also think it is not convenient to use the words may and might.

Example 11 appreciates the language in Text B as neutral. The scope of this appreciation extends cataphorically to the previous appreciation of Text A as "showing an intense appropriation of the research", which means Text A is not neutral. Note that the process *apropiarse*, of which *apropiación* is a nominalization, has the negative meaning of taking something which belongs to someone else (El Colegio de México, n.d.). The process is intensified with the epithet *intensa*. This intense, non-neutral appropriation of the research appears to be the participant's way of evaluating negatively the use of "we" and "our" in Text A, which are the only linguistic forms in that text that can be understood as signaling authorial appropriation of the study. Similarly, example 12 explicitly states that professional journals do not accept the use of "we." Example 13 evaluates first-person us in negative terms too, and it also evaluates negatively the use of modals of dialogic expansion.

Regarding this feature (presence vs. absence of modals), it seems to be the focus of the evaluation in Example 14:

Example 14. *Por la manera en que está siendo afirmado el párrafo*/Because of the way that paragraph is being affirmed.

This participant chose Text B as the published one because, unlike Text A, it is affirmed. This corresponds to the nature of the utterances in Text B, which are almost all bare assertions, which contrasts with the tentative modals in Text A. Thus, it appears the participant values monoglossic utterances positively as indicating firmness and truthfulness and thinks they are appropriate in scientific publications.

As for the appreciations of complexity, they center on clarity and simplicity as illustrated by examples 15 and 16.

Example 15. *Es más precisa, da al lector la idea central en las primeras líneas*/It is more precise, it gives the reader the main idea in the first lines…

Example 16. *Usa palabras más sencillas para que cualquier público que lea el artículo sea fácil de entender* [sic]/It uses simpler words so any audience who reads the article will find it easy to understand.

Interestingly, the participant in example 16 justifies his/her choice of Text B as the one published in a prestigious scientific journal in terms of its clarity and simplicity for any reader. This suggests an insufficient awareness of the nature of specialized communication, which is often aimed at specialized audiences.

Discussion and Conclusions

The first research question asks how the participants evaluate the two texts in focus. As shown above, the most prevalent Attitude pattern in the participants' justifications of their choices was appreciation:valuation, followed by appreciation:composition:complexity. Other types of attitude were only marginally present in the corpus.

A clearly discernible difference was the much higher proportion of negative valuation in the answers of participants who chose Text B (25.4%) vs. those who chose Text A (18.1%). Further, the former group directed their attitude to language in greater proportion than the latter (57.1% vs. 41.5%). As discussed in

the preceding section, the first group's language-focused evaluations largely targeted the language of Text A, qualifying it as informal, inappropriately personal, non-assertive, and complicated. Many of these negative valuations are explicitly focused on markers of engagement, like plural first-person forms and modals of heteroglossic expansion. By contrast, for this group, Text B was formal, scientific, technical, impersonal, assertive, and clear.

Conversely, the participants who chose Text A as published, evaluated this text as formal, scientific, technical, and clear. They tended to focus less on language and slightly more on context or the text as a whole. In contrast to the participants who chose Text B, this group tended to evaluate APPRAISAL features positively, and their exclusion negatively. One of the two messages, including judgment evaluated the authors' inclusion of heteroglossic features positively in ethical terms and correspondingly criticized the authorial ethics of excluding dialog from Text B negatively.

The second research question focused on the ideologies in the participants' answers. The participants who chose Text B clearly textualized an ideology aligned with the prescriptions for academic Spanish discussed by García-Negroni (2008), which proscribe the use of engagement and attitude markers. Some answers from this group explicitly named first-person pronouns and modals as inappropriate language for an academic publication. Other explicit evaluations included labeling text B as formal, neutral, and objective. In particular, the segment *apropiación intensa de la investigación*/intense appropriation of the research suggests an ideology whereby the use of first-person forms equates an inappropriate ownership-taking of the research by the authors. Presumably, under this ideology (which is not without merits), published research belongs to science, and authors should make that clear by not attaching themselves to it textually.

By contrast, the participants who chose Text A textualized an ideology that positively values the inclusion of APPRAISAL features for a variety of reasons. Some of these reasons are: showing clear authorship, clear authorial commitment to results, and the consideration of alternative perspectives. These participants seem more attuned to the language ideology of self-promotion in dialogue with other voices that prevails in English-language international publications (Bondi, 2014). An interesting contrast was that some participants in this group explicitly considered audience appropriateness as a criterion driving their choices. They went as far as appreciating text B positively as clearer for a lay audience but choosing A because, in their view, its language better matches the expectations of a specialized audience. This kind of audience awareness was absent in the answers of those who chose text B.

Generally speaking, the results of those participants who chose Text B align with those of Chang (2016). The doctoral students in her sample preferred assertive claims over tentative claims as the former seemed more certain and authoritative and, thus, more convincing. This group's lack of audience awareness also mirrors Chang's (2016) participants' general inability to discuss stance in dialogic terms. Their answers might stem from both the language ideology identified by García-Negroni (2008) and a lack of exposure to English medical discourse. An implication of these findings is that, as suggested by other studies (Arnoux et al., 2002; Tosi, 2017), these participants might experience difficulties when reading heteroglossic texts. Therefore, interventions like that proposed by Jou (2016) should be implemented in order to raise these students' awareness of APPRAISAL resources and their impact on understanding the fine details of interpersonal meaning. In addition, findings from the current study speak to the need to promote explicit reflections on relevant language ideologies in the context of such interventions. Such reflections in the context of an APPRAISAL-based intervention would further the goal of using SFL as a way for teachers and students to examine reading processes together (Gerot, 2000).

The preference for APPRAISAL patterns as duly scientific displayed by those who chose Text A might be due to more frequent exposure to English-language academic texts in their field. However, in the absence of interview data or ethnographic observations this cannot be ascertained. Future studies should combine text analysis with other data sources in order to more fully characterize ideologies and their potential sources. Studies contrasting readers and texts in other disciplines, academic levels, and national cultures would also contribute to this line of inquiry. Studies combining analyses of language ideologies, awareness of English-language APPRAISAL features, and performance on reading tasks requiring the processing of APPRAISAL resources for comprehension might shed further light on potential influences of ideology on L2 reading. The influence of the specific wording of task questions can also be investigated. For instance, had the instrument asked to decide which version was a draft and which was the final published version, the answers might have been different. This possibility needs to be explored.

To conclude, this paper has addressed the need for additional research on EAP reading (McGrath et al., 2016). The findings reveal that language ideology should be considered as one component of this highly complex skill (Nergis, 2013). When teaching academic reading, the focus is typically on helping students understand topics, or ideational meaning. However, attending to interpersonal meaning appropriately is important for college-level reading tasks that require understanding authors' attitudes toward topics and other authors (Perales-Escudero & Vega, 2016). This paper has shown that some students' language ideologies can interfere with that aspect of comprehension. Thus, students' ideologies about academic language should be addressed in EAP as doing so holds potential to increase their ability to learn from English-language texts in their disciplines.

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