Rhetorical Move Structure in Abstracts of Research Articles Published in Ecuadorian and American English-Speaking Contexts

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Abstract
A growing body of literature recognizes the importance of examining research article (RA) abstracts in particular disciplines. RA abstracts, after titles, are the first mini texts that readers may encounter in a scientific paper. Abstracts, therefore, determine the value of the paper and categorize them as good or vague. The present contrastive study aims to investigate the rhetorical organization of RA abstracts published in native and non-native English-speaking countries. It adopts Hyland's (2000) rhetorical structure model: introduction, purpose, method, product, and conclusion. A corpus of eighty RA abstracts written in the fields of humanities (education and sociology) and science (electronics and agronomy) and published in Ecuadorian and American journals between the periods of 2010-2016 constitutes the target data for the analysis. The results show rhetorical variation in the construction of RA abstracts across the four disciplines. These abstracts followed a non-hierarchical five move structure with three stable moves, as of M2, M3, and M4 sections. Research findings add to the claim that in academic writing, different discursive conventions and discourse community practices influence writers' preferred rhetoric and composing patterns.
Keywords: abstracts, native and non-native contexts, rhetorical organization, scientific papers

Introduction

The massive production of knowledge and the necessity to spread scientific information have made English the language for the dissemination of academic research. Over 95% of academic papers across disciplines are published in this language (van Leeuwen et al., 2001). Indeed, with the number of studies published every year, the English language is perhaps the main source in academia (Swales & Feak, 2009). Even journals publishing articles in other languages require that authors include the English translated versions of the original abstracts (Kafes, 2012). English abstracts increase the opportunities for spreading the research articles (RA), both nationally and internationally.

The use of English RA abstracts in academic publications has led to extensive attention being paid to how writers present the new knowledge to the academic discourse communities (Hyland, 2000; Lau, 2004; Swales, 1990). Much research on RA abstracts has been widely investigated across disciplines and languages (e.g., Lorés, 2004; Samraj, 2002; Pho, 2008; Doró, 2013; Çakir & Fidan, 2015). Because abstracts are the gateways to knowledge production and the first "mini-text" freely available online, they provide readers with a brief description of the study, "helping readers decide whether to read the whole article or not" (Huckin, 2001, p.93). Abstracts are a clear reflection of the entire document in such a way that the information content influences readers' interest in scanning or skimming the paper (Lorés, 2004). Thus, if the text is accurate in terms of content and structure, readers can follow it, moving easily from one sentence to another and from one paragraph to the next.

Hyland (2009a) points out that, "a text carries meanings and gains its communicative force only by displaying the patterns and conventions of the community for which it is written" (p.34). Abstracts, depending on their readability, may show readers that the paper as a whole is worth reading whereas their ill-construction diminishes the possibilities of indexing and citation. However, writing accurate texts are challenging, particularly for inexperienced writers, who report difficulties at following the rhetorical norms set by their discourse communities (Sedan, Erkan & Jingjing 2016). The knowledge of the rhetorical moves —*discoursal or rhetorical units to determine the communicative purpose of the texts* (see Swales 1990), and writing instructions, to some extent, provide writers with the guidance to produce better abstracts, in terms of lexical-grammatical choices and appropriate discourse structures. The present research study examines the rhetorical move structure of abstracts in scientific papers published in Ecuadorian and American journals and written in the fields of humanities and science.

Theoretical Background

The publication of research articles (RA) written by native and non-native academic writers has greatly increased in the academy. Hyland (2009b) states that "research articles are central to the academic enterprise" (p.1) because they are shorter than books and written about very specific disciplines. Researchers, on the one hand, have kept their interest in the rhetorical development and organization of texts as a social construction of the language (e.g., Halliday, 1994), and, on the other side, they have focused on analyzing the accuracy of written texts, in terms of content and structure (e.g., Hyland, 2000). Since then, much research has examined the hierarchical and non-hierarchical move structure and linguistic realizations of RA abstracts produced by authors from different linguistic and cultural backgrounds (e.g., Dos Santos, 1996; Lorés, 2004; Kafes,

2012; Hyland, 2000; Samraj, 2002; Pho, 2008; Suntara & Usaha, 2013; Doró, 2013; Çakir & Fidan, 2015). Most of these published research studies carried out in several fields, for instance, applied linguistics, sociology, linguistics, literature, education, just to mention a few, have shown that the rhetorical organization of abstracts in scientific papers varies across disciplines and languages.

For example, Kafes (2012) found that the hierarchical structure in the majority of the abstracts written by American, Taiwanese and Turkish authors was the *purpose (M2), method (M3) and product (M4) sections*. This result is in line with those of Pho (2008), who identified that introductions and conclusions are the least frequent rhetorical structures across the disciplines of applied linguistics and educational technology. In the same way, Dos Santos (1996) observed that *M2*, *M3*, and *M4* were compulsory in the field of applied linguistics and that each move employs specific lexico-grammatical choices to drive its communicative goal. Samraj (2002) meanwhile discovered that unlike Kafes, Pho and Dos Santos' study, *conclusion* (M5) sections frequently occurred in the whole corpora of RA abstracts. As the frequent occurrence of moves relies on social dimensions, for instance, disciplinary practices and discourse conventions, the structure and organization of texts are not hierarchically constructed. That is academic discourse conventions orient and influence writers in adopting *disciplinary-oriented* practices when introducing their works, which to some extent, vary according to the writer's intentions and preferred rhetoric.

In another seminal study, Suntara and Usaha (2013) report that abstracts in the field of applied linguistics compared to the linguistics texts followed a non-hierarchical structure with four stable moves, whose functions are to state the purpose, methodology, results, and conclusions. *Introduction* (M1) moves, due to their less frequent occurrence were categorized as non-obligatory in both linguistics and applied linguistics sub-corpora. The variation in the structure and organization of written texts, to some extent, is the result of the linguistic and cultural diversity across disciplines. Similarly, Lorés (2004) argues that the rhetorical organization of abstracts differs from one another because authors follow established discourse community practices, which in many cases, embody different functions.

In a comparative analysis of abstract written in English by native and non-native speakers of the language, Çakır and Fidan (2015) observe that native English writers tend to justify the place of the study before announcing the research purpose while non-native authors described the purpose without referring to the place. These rhetorical differences could be attributed to cross-linguistic backgrounds and expectations of the discourse community who decide whether the article is worth reading. Lau (2004) discovered heterogeneity in the organization of abstracts written by novice writers. They showed three rhetorical patterns, as of 1) *M1-M2-M3-M5*, 2) *M1-M4-M5* and 3) *M4-M5*. The distinct rhetorical patterns employed by novice authors could be the result of their inexperience in academic writing and lack of awareness related to the conventions of discourses, disciplinary practices, and phraseology used in the production of written texts. In this way, Doró (2013) points out that abstracts with less than three moves are often considered vague, particularly for readers who are outside the given disciplines and discourse communities. Nonetheless, this tendency should not be the reason for the article's rejection, but it could be the subject of further analysis to explore how effective and well-organized those abstracts are concerning the disciplines they belong to.

The studies discussed above clearly argues that the rhetorical move structure of abstracts is not hierarchically constructed across disciplines. Connor (2004) highlights that when producing a particular type of text, discursive practices and lingua-cultural conventions shape the context of the content. This point of view claims that each text is connected to different linguistic and cultural backgrounds, disciplinary phraseology, the context of publication and intended audience, which may influence the frequency of moves. Although the literature review done by the researcher has reported studies carried out in Latin America (e.g., Tapia and Burdiles, 2012; Parodi, et al. 2014; Quintanilla, 2016), covering the discursive and pragmatics aspects (Beke, 2008), and lexico-semantic relations (Venegas, 2006) of texts, no database concerning the analysis of RA abstracts was found in Ecuador, either print or online. What is more, contrastive studies between Ecuadorian and American journals have been rarely investigated (Tovar, 2018), compared to the number of research works published over the past two decades (e.g., Pho, 2008; Lorés, 2004; Behnam and Golpour, 2014; Loutayf, 2017). To fill this gap, the present study investigates the rhetorical move structure of RA abstracts published in Ecuadorian and American journals. It Follows Hyland's (2000) move model. We, hypothetically, can account that the context of publication and different discourse conventions determine the rhetorical move structure of abstracts. To respond to this belief, the current study expects at answering the following research questions: Do English abstracts published in native and non-native English-speaking contexts show different rhetorical move patterns? if yes, what are those differences? Do abstracts display similar paragraph length?

Methodology
Data collection
Two English sub-corpora were compiled for the contrastive linguistic and disciplinary analysis. Each corpus contains 40 RA abstracts selected from journals that meet the criteria of *a) representativeness* —appropriate sample testing group, *b) reputation* —indexation and double-blind peer-reviewed, and *c) accessibility* —in print or online database. Even though the sample of English abstracts is limited, the research will provide outsiders with useful outcomes in the humanities and sciences fields. Therefore, in this study, 20 abstracts from each set of disciplines are large enough for comparative analysis, which would shed light on research generalization and linguistic implication.

The education, sociology, electronics, and agronomy abstracts were explored because these disciplines are linked to the global scientific and technological production to generate scientific and technological research. Particularly in Ecuador, they are based on the innovation, promotion, development, and dissemination of knowledge and culture internationally (Constitution of Ecuador, 2008). These areas, in Ecuador, are the professions with widely job opportunities (INEC, 2018), and of interest to the higher education system. Therefore, it is important for academics who aim at spreading their research findings, not only gain knowledge in their career skills but also academic writing, particularly when writing abstracts of scientific papers in English.

Corpus selection
Only RA abstracts that meet the criteria of a) national or international indexing, b) double-blind peer-reviewed, c) unstructured text, and c) single paragraph condensed summary were chosen as the sample data for the analysis. Additionally, the English abstracts in the disciplines of education, sociology, electronics, and agronomy should be published between the periods of 2010-2016. With

this in mind, the selection of the abstracts was also based on the context of publication and not on the nativeness of the authors.

The data set of American journals includes 40 abstracts published by: American Journal of Education (AJE), Journal of Teacher Education (JTE), American Journal of Sociology (AJS), Sociological Perspectives, Journal of Electronic Materials (JEM), Journal of Electronic Packaging (JEP), Journal of Agricultural and Food Chemistry (JAFC) and Journal of Agricultural Science (JAS). The corpus of each discipline (sociology, education, electronics, and agronomy) contains ten RA abstracts. These journals are indexed in *ERIC, EBSCOhost, Elsevier, American statistical association, SciSearch, SCOPUS, Applied Science and Technology, and GoogleScholar*.

Similarly, the Ecuadorian corpus consists of 40 abstracts written in English and published in Ecuador in the following journals: INNOVA Research Journal, Alteridad, Axioma, UTCiencia, Revista Tecnológica ESPOL, Amazonica, Analitika, Procesos, Perfiles, Avances, Ingenius, and La Granja. All four disciplines encompass 10 abstracts each. Ecuadorian journals are indexed in *latindex* (regional cooperative online information system for scholarly journals from Latin America, the Caribbean, Spain, and Portugal), as well as in *elsevier, dialnet, REDIB, GoogleScholar, and e-rivist@s*. These journals are hosted by Ecuadorian Universities. Unlike American journals, Ecuadorian ones are mixed, which devote special sections and space for the aforementioned disciplines.

Data analysis

Hyland's (2000) five-move model was used for the analysis. This is because Hyland's model documents the lexico-grammatical relationships between the cultures of academic communities and the discursive practices across eight disciplines in science and humanities. Thus, the research relies on its functions and communicative goal:

Table 1. *Classification and function of moves (Hyland 2000, p.67)*

Move	Function
1. Introduction	Establishes the context of the paper and motivates the research.
2. Purpose	Indicates the purpose and outlines the aim behind the paper.
3. Method	Provides information on design, procedures, data analysis, etc.
4. Product/Results	Indicates the results and the argument.
5. Conclusion	Points to applications or wider implications and Interpretation scope of the paper.

In the process of identifying moves and determining their functions, phrases and formulaic expressions were used as a referent to differentiate one move from another. For instance, *in a recent work..., the present study examined..., the purpose of this investigation is..., the article analyzes data from..., the data for this research..., the findings reveal..., the results of the study suggest..., the article concludes..., within this context, differences ..., in this project, we...,*. As a move may be within one or more sentences, the study used a top-down and bottom-up approach

to recognize moves and set up the boundaries between them (Ackland, 2009). The former, top-down approach focuses on the content of abstracts, while the latter, bottom-up approach looks for linguistic signals to categorize the textual boundaries of the moves in each discipline.

The researcher, namely human coder, and the undergraduate students majoring in English, ensure the reliability of the move coding. The procedure consists of a double round of coding with an interval in between. If there were any move coding disagreements, the discussions were made. Once each move was set down and differentiated from one to another, the coding was compared to see to what extent the rhetorical move structure matches. The classification of moves was based on Kanoksilapatham's (2005) criterion, wherein a move, depending on its frequent occurrence was considered as obligatory (100%), conventional (60% to 99%), and optional (less than 60%). The *Word Count* online editor was used to count the length of the texts. The research, therefore, emphasizes the analysis of move occurrence, move pattern and paragraph length.

Results

This section presents the research outcomes of the rhetorical move analysis across disciplines between NNE and NE sub-corpora. Similarities and differences are discussed.

Table 2. *Move frequency in the two datasets*

Moves	Ecuadorian corpus n=40		American corpus n=40	
	f	*%*	*f*	*%*
1. Introduction (M1)	22	55	27	68
2. Purpose (M2)	37	93	39	98
3. Method (M3)	36	90	40	100
4. Results (M4)	33	83	38	95
5. Conclusion (M5)	11	28	19	48

Table 2 shows the similarities and differences of rhetorical move occurrence in the two corpora. Ecuadorian corpus follows a three-move structure, as of purpose, method, and results. In American corpus, introduction, purpose, and results were conventional while the method move was obligatory (100%). Conclusions were found as an optional move in both datasets. Unlike in American corpus, M1 in Ecuadorian ones was optional (55%). Purpose, method, and results were the dominant moves throughout the two corpora.

Table 3. *Analysis of rhetorical move structure in NNE and NE groups*

Moves	Education NNE	Education NE	Sociology NNE	Sociology NE	Electronics NNE	Electronics NE	Agronomy NNE	Agronomy NE	*f = NNE* *Hu*	*Sci*	*f = NE* *Hu*	*Sci*
Introduction	60%	40%	50%	90%	40%	60%	70%	80%	*55%*	*55%*	*65%*	*70%*
Purpose	100%	90%	95%	100%	90%	100%	80%	95%	*98%*	*85%*	*95%*	*98%*
Method	100%	100%	65%	100%	90%	100%	100%	95%	*83%*	*95%*	*100%*	*98%*

Results	80%	100%	60%	100%	90%	80%	100%	100%	*70%*	*95%*	*100%*	*90%*
Conclusion	10%	40%	30%	50%	10%	30%	60%	70%	*20%*	*35%*	*45%*	*50%*

Table 3 provides an overview of the move frequency across the four disciplines. There were obligatory, conventional and optional moves throughout the four sub-corpora. Since move occurrence varies significantly, introductions and conclusions were classified as conventional (99% to 60%) and optional sections (less than 60%). Similarly, purpose, method, and results were functioning as either obligatory or conventional moves in the four datasets of article abstracts. Methods were obligatory (100% of occurrence) in education, sociology, and electronics texts produced in NE contexts. What stands out in the table is that abstracts in the discipline of agronomy adopt the five-move model suggested by Hyland (2000), where results, in the two corpora, work as the obligatory move. Further analysis shows that sociology and electronics in NE group and education in NNE ones follow a four-move structure, as of *M1-M2-M3-M4*. Purpose was the first highest frequent move (98%, 95%) in humanities while in science, it is the second most frequent one. Unlike method in humanities, in the science field, it was the first most frequent move. Methods and results in NE group, particularly in the humanities field, were categorized as obligatory moves (100%).
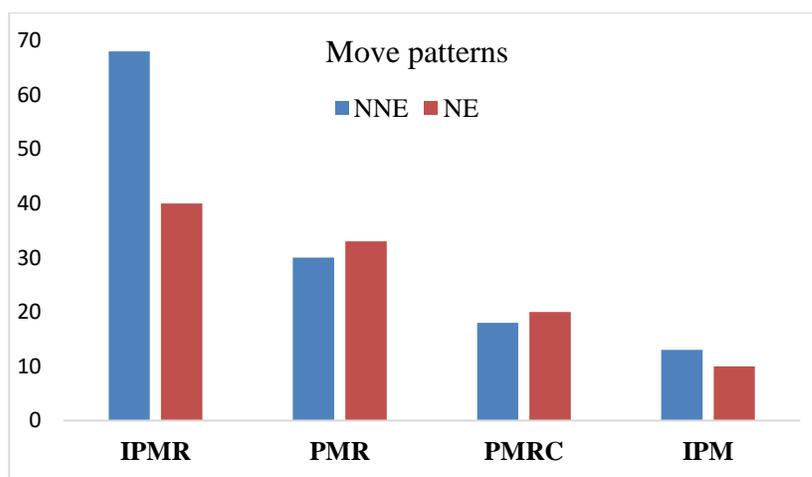

Figure 1. The occurrence of semi-linear patterns

Figure 1 provides the summary statistics for the frequent move patterns in NE and NNE groups. From the data, we can see that the semi-linear move sequence, namely *IPM* had a lower incidence in both NE and NNE groups (13% to 10%) while IPMR reported considerable move occurrence in the two English corpora. In sum, data in Figure 1 shows that the semi-linear patterns, for instance, IPMR; PMR; PMRC and IPM were the move patterns that regularly occur when constructing the rhetorical move structure of the RA abstracts, written either in native or non-native English-speaking contexts.
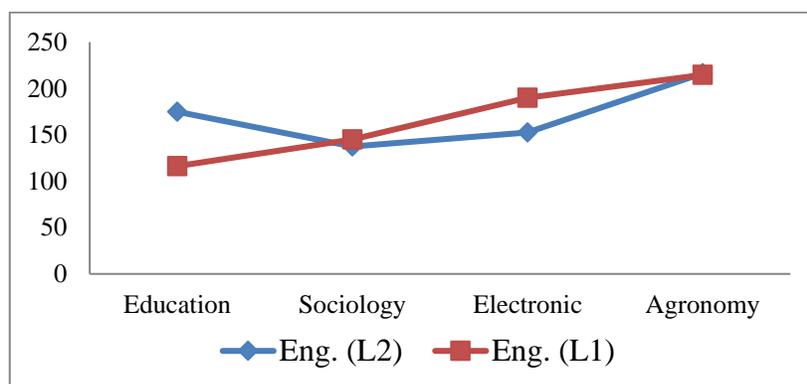
Figure 2. Word count across disciplines.

From the data in figure 2, it can be seen that the word count varies quite considerably across disciplines in the humanities and science fields. Ecuadorian texts report the higher word count (170,32) compared to the American texts (166,50). While agronomy and electronics texts in the NE group report having the highest average word count with 216,42 and 190 words, sociology and education abstracts in NNE and NE corpora had the lowest word count with 137,42 and 116,28. The data analysis revealed that the electronics and education abstracts of NE and NNE written texts differ significantly in the number of words compared to the sociology and agronomy abstracts. Although the length of the abstracts contributes to the fulfilment of the overall communicative purpose of the texts, this may not be considered as the only or main reason for the move structure differences, but as one of the factors that in the text organization and language choices determine the structure of academic abstracts. Nonetheless, it should be borne in mind that, in terms of content and rhetorical move structure, there are various reasons for text variation across disciplines and fields.

Discussions

The comparative analysis of English RA abstracts across the four disciplines showed that these abstracts have a non-hierarchical five-move pattern with three stable moves, whose functions are *to present the purpose, describe the method and discuss the product of the research* in which the frequency of occurrence is above 94%. These outcomes corroborate the research findings of Dos Santos (1996), Pho (2008), Doró (2013), Behnam & Golpour (2014) and Çakır and Fidan (2015), who concluded that the schema: M2-M3-M4 is obligatory in some RA abstracts. Conclusions (as optional) were the least frequent move while introductions match the results observed in previous studies (e.g., Lau, 2004; Kafes, 2012; Fallatah, 2016) where this section (M1) was commonly used as conventional. A Comparison of the findings with those of other studies confirms that the construction of rhetorical move structure across disciplines and fields varies significantly.

As can be seen from table 3, the agronomy texts reported following a rhetorical pattern of five moves. Although the percentage of occurrence in the M1 and M5 is not significantly higher compared to the NE group, this finding showed that the agronomy abstracts are more closely to the English-written convention rather than the others, but in the gain, the NNE group has the lowest figure. The reason for this tendency might be that the NNE authors conventionally devote more space to the purpose, method, and product when shaping the rhetorical organization of

abstracts. A possible explanation for this rhetorical difference might be that L1 and L2 academic authors experience different lingua-cultural conventions within their disciplinary communities.

The research outcomes indicate move variation in abstracts published in humanities and science fields along with the two corpora. The basis for such rhetorical dissimilarities is mainly explained by the influence of the context of publication, which is different in terms of discourse practices that writers are addressing. Abstracts in the field of science reported that M3 and M4 are the most frequent moves (95% of occurrence) whereas, in humanities, they were the second (83%) and third (70%) most frequent moves in NE and NNE groups, respectively. What stands out in the data is that a move in NE group is considered as obligatory and conventional while in NNE one, it is taken as optional. These results are in line with Fallatah (2016), who revealed less rhetorical move consistency among NNE academic writers.

Variation was observed in the move occurrence across disciplines. The following examples in education and electronics texts, belonging to humanities and science, respectively, illustrate frequent use of the moves. As shown in example (1), the move frequency in the education texts (NNE group) was M1-M2-M3-M4-M5 whereas in example (2), moves 2, 3, 4 and 5 were the preferred pattern in the electronics ones (NE group). Moves are numbered and highlighted to facilitate their understanding and identification in the texts.

(1) Education Text written by NNE:
  (M1) *In a recent work by Chalak and Kassaian (2010) the motivation and attitudes of university…* **(M2)** *The present study aims to investigate the motivation of…* **(M3)** *For the purpose of this investigation a questionnaire containing items related to… (M4). The results show that all the students are highly motivated…, they also state to be very interested on learning foreign languages.* **(M5)** *It suggests pedagogical implications…*
(2) Electronics text written by NE:
  (M3) *Ohmic curing was utilized as a method to improve the conductivity of three-dimensional…* **(M2)** *The goal was to increase conductivity of the conductive path without inducing damage…* **(M3)** *The 3D via/interconnect structure was routed within 3D polymeric substrates…* **(M4)** *Ohmic curing was shown to decrease the measured resistance of the via/interconnect structure without...* **(M5)** *The work demonstrated a method to overcome the thermal cure temperature limitations of polymeric substrates imposed on the processing…*

From the data, we can see that the education text (example 1), published in the field of humanities (NNE group) showed move linearity or move ordering. Whilst the electronics text in the field of science (NE group), indicates semi-linearity, in the sense that the moves are not used in sequential order as the education text does (example 2). The differences in the education and electronics texts rely on the move ordering; consequently, the education text might be categorized as linear and the electronics one as a semi-linear text. It is because, in the electronics text, M3 is emphasized two times and overlaps at the beginning of the text, which is unnecessary if the text adopts the four-move pattern, as of M2-M3-M4-M5.

Although some of the electronics texts of NE group reported semi-linearity, for instance, M2-M3-M4; M1-M2-M3 and different move ordering (example 3), these abstracts were worth reading, in terms of content and structure compared to the texts, which did not include accurate information (example 4). As can be seen, the sociology text seems to be the result of patchwork paraphrasing when transferring L1 functions to L2 —e.g. /_sin secuelas o evidencia física, cometidas_/ _'the sequelae or Physical Evidence sin committed'_ (see example 4). Due to its inaccurate information, identifying the moves and thus setting up the move frequency was difficult, as well. Because of the inappropriate lexico-grammatical choices, the length of sentences and vague information, this abstract shows unclear rhetorical move structure and information.

(3) Electronics text written by NES:
> **(M2)** *The effect of a polycrystalline silicon (poly-Si) seeding layer on the properties of relaxor ... thin films and energy-harvesting cantilevers was studied.* **(M3)** *We deposited thin films of the relaxor on two substrates, with and without a poly-Si seeding layer.* **(M4)** *The seeding layer, which also served as a sacrificial layer to facilitate cantilever release, was found to improve morphology, phase purity, crystal orientation, and electrical properties.* **(M4)** *We attributed these results to reduction of the number of nucleation sites and, therefore, to an increase in relaxor film grain size.*

(4) Sociology text written by one NNES:
> **(M2)** *This article explores the reasons why the Manifestations of symbolic violence son and reproduced socially tolerated in the majority of cases, impunity a Through the (mM) micromachismos, which is the term that is known to everyday Low Intensity macho aggression, the sequelae or Physical Evidence sin committed by both men's and women, and that no child questioned due to the naturalization of inequitable gender schemas, micromachistas: Besides these practices no shares represent deliberate actions generated in the conscious, but obey one patriarchal estructures that have internalized historically Sido room, based on stereotypical gender roles nesting one Gender and manifest themselves in many areas of everyday life, such as: street harassment, the use of public space, sexism in language, the distribution of tasks by Genre, the image of men and women in the advertising space, jokes, memes, among others.*

Examples (1), (2), (3) and (4) provide evidence on how academic texts from different disciplines vary in the construction of the rhetorical move structure of abstracts to communicate the scope of the whole paper. Example 5, items a, b, c, and d, illustrate how abstract reports inaccurate content and the transference of Spanish-L1 functions to the target language. The underlined words show the transfer of L1 words in Spanish to the English translated version. The findings reveal that the communicative functions of the moves, to some extent, are the results of the authors' intended purpose, which in many ways, respond to their discourse conventions. This is, in significant part, because, according to Hyland (2009b), writing is the way in which authors consolidate the information content and demonstrate readers the understanding of the subjects.

(5) Example of a sociology written text:
> ***a.*** *[…] manifestations of symbolic violence son and reproduced socially tolerated in the majority of cases…*

b. *[…], impunity a Through the (mM) <u>micromachismos</u>, which is the term that is known to everyday…*

c. *[…], the sequelae or Physical Evidence <u>sin</u> committed by both men's and women, and that no child questioned due to the naturalization of inequitable gender schemas, <u>micromachistas</u>…*

d. *[…] obey one patriarchal <u>estructures</u> that have internalized historically […] based on stereotypical gender roles nesting one Gender and manifest themselves in many areas of everyday life*

The results show not only the overall structural organization, but also different rhetorical move patterns used in NE and NNE groups of abstracts. This tendency is because authors conventionally keep on their own disciplinary practices, epistemology, and lingua-cultural backgrounds to create knowledge, frame and understand emerging discourse communities to whom they are writing. That is, in the academy, authors construct and perform their social realities, personal identities and professional institutions (Hyland 2009b). However, writing may be produced by considering the coherent communicate functions that discoursal units display in the text (Hyland, 2000). The fact that the NE and NNE texts did not always include all five moves is unlikely to be caused just by the word-count restrictions of the journals in which they were written but also associated with disciplinary practices, cultural and context of the publication.

Although the length of abstracts is suggested in publication manuals, and typically range from 150 to 250 words (APA, 2010, p.27; Chicago Manual, 2010, p.42), longer and shorter abstracts were noted in NE and NNE corpora. One of the longest abstracts (agronomy) in the data with 301 words displayed verbosity, repetition and complex information whereas the shortest one (education) with 85 words showed accuracy, in terms of content and structure. It is inferred then, that the construction of accurate abstracts does not depend on the number of words, but on how writers organize the information.

Conclusions

The research study confirms that although abstracts of academic papers could include the five move structural elements when introducing the gist of the complete article, this pattern is not always hierarchically adopted across languages and disciplines. A clear example is the rhetorical move divergence between NE and NNE groups. This divergence is because authors follow and respond to different discursive practices and lingua-cultural conventions, as a result, the move occurrence and its frequent use across disciplines varied significantly. Although the three-move structure was reported in all the RA abstracts, further analysis revealed that the agronomy abstracts in the NE and NNE groups, written in the fields of science follow a hierarchical structure with five conventional moves.

Because moves work as functional units to communicate information, these may be obligatory, conventional or obligatory. Ecuadorian and American written texts did not always include all five moves, it is unlikely to be caused by the word-count restrictions of the journals in which they were published. Also, the move ordering (linear and semi-linear sequence) found in the abstracts report irrelevance of length texts in the construction of rhetorical moves. Although the five moves were not frequently used in NE and NNE English-written texts, the findings

revealed that the rhetorical move structures of RA abstracts in the NE group generally reflect the English international convention; however, differences in the textual organization were observed. This genre difference may be ascribed to the fact that unlike non-native English texts, native ones show the useful selection of moves and accurate abstracts when drafting the information content to promote their research studies.

Overall, this study strengthens the idea that authors' different discourse practices, the context of publication, and linguistic and cultural backgrounds influence the construction of the rhetorical move structure of abstracts in scientific papers. Due to the move patterning, word counting, move ordering and move frequency (figures 1 and 2), the two datasets of abstracts demonstrate distinct rhetorical and textual move organizations. Nonetheless, the highest three-move occurrence found in the two English corpora implies that NE and NNE groups were aware of the importance of this rhetorical move structure. Therefore, it is suggested that the authors in the other disciplines and fields take these findings as a referent when producing their RA abstracts into account. The contribution of this study has been to confirm the outcomes of Dos Santos (1996), Pho (2008), Doró (2013), Behnam & Golpour (2014), and Çakır and Fidan (2015), who concluded that M2-M3-M4 moves are conventionally constructed across disciplines and languages.

Writing accurate RA abstracts in terms of content and structure play an important role in the academy. They determine the acceptance or rejection of a paper conference. The communicative effectiveness of abstracts relies on the effective selection of moves and their appropriate phraseology. Accordingly, when persuading readers about statements, writers must display a stance like disciplinary insiders, through a writer-reader dialogue where the texts engage, orient and guide readers to make a clear interpretation. It is essential then that authors take a writer-oriented sense when presenting their studies and not only assume that the understanding of that information depends on the reader's ability to predict such information. Consequently, as in academic writing, the practical selection of rhetorical and linguistic features determines text readability and publication success, English-written texts should be accurate in terms of content and structure. It is hoped that the findings would be the referent source to implement useful pedagogical practice and develop teaching materials for writing instructions.

Despite the reported outcomes, the small sample size, language proficiency, and authors' lingua-cultural backgrounds may affect the generalization of the study. To have a wider perspective of the current findings, further studies should consider these limitations when examining the contextual factors that affect the move occurrence and the lexical and grammatical choices frequently used in RA abstracts.

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