

Analysis of abstracts in English: A study of abstracts written by EFL writers in Argentina

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(Received 13/11/16; final version received 05/02/17)

ABSTRACT

English is the preferred language in the international world of scholarship and research, but some EFL (English as a foreign language) scientists find linguistic barriers to interact confidently in this dialogue. Since genre and corpus studies have greatly contributed to the understanding and production of texts, I analysed a corpus of abstracts written by EFL writers in Salta, Argentina, to inform target writers and ESP (English for specific purposes) teachers about this genre which requires special attention. The aim of this article is to report findings on rhetorical structures and communicative purposes of the abstracts in this corpus to compare them with existing models in English literature, and to show the structures available that may help EFL science writers effectively improve their abstract writing skills and communicative purposes.

Keywords: abstracts; rhetorical structures; genre studies; EAP; international language

RESUMEN

El inglés es la lengua de preferencia en el mundo internacional de la academia pero muchos científicos que usan inglés como lengua extranjera (ILE) encuentran barreras lingüísticas que les impiden comunicarse con seguridad. Dado que los estudios de géneros y de corpus han contribuido en gran medida a la comprensión y producción de textos, analicé un corpus de *abstracts* escritos en inglés por escritores ILE en Salta, Argentina, para informar a estos científicos y también a profesores de ESP sobre este género que requiere atención especial. El objetivo de este artículo es dar a conocer las estructuras retóricas y los propósitos comunicativos de los *abstracts* en este corpus, compararlos con los modelos que existen en la literatura en inglés y mostrar las estructuras disponibles que pueden contribuir a una producción más eficaz de este género escrito por científicos ILE.

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Palabras clave: resúmenes; estructuras retóricas; estudios de género; inglés con fines académicos; lengua internacional

ONE OF THE main commitments of researchers and scientists worldwide is to share their work and findings in international academic dialogues in their area of expertise. A great amount of this interaction heavily relies on written communication, as Cross (2006, p. 434) quoting Montgomery (1999, p. 32) states, “science would not exist if scientists were not writers”. Consequently, a high percentage of this international interaction is in written form and uses English as the preferred language of academia; as expressed by Swales (2004, p. 9), “English now occupies an overwhelmingly predominant role in the international world of scholarship and research”. Thus, it becomes apparent that researchers have the imperative need of developing reading and writing skills in English to interact with scientists around the globe. Researchers in Argentina are no exception. The problem appears to be that some scientists or researchers who use English as a Foreign Language (EFL) desire to be more active in their fields at international level, but they find some linguistic barriers to overcome.

Argentina is a monolingual country surrounded by Portuguese and Spanish speaking countries, where English is learned as a Foreign Language (FL) and used as a Lingua Franca (LF) to communicate internationally (Cook, 2003). Thus, Argentinean Spanish-speaking researchers, who work in either private or public institutions, need English skills, especially academic reading and writing skills, in order to participate in this international scientific dialogue effectively. One avenue open to them is to ask for advice from English teachers at their institutions. Another way is to attempt to self-teach using different sources of input such as textbooks, sample texts or transfers from their L1 (mother tongue). Consequently, most scientists learn this academic writing practice by doing it –self-taught– or by imitating structures, in either Spanish or English.

In view of this situation and to address a need of my EAP (English for academic purposes) students, I conducted research on abstracts written in English by a group of Spanish speaking researchers related to the Natural Sciences at Universidad Nacional de Salta (UNSa). There are several reasons for focusing specifically on abstracts. First, although writing papers in English may seem to be the most challenging difficulty for non-native speakers due to their length, abstracts present many challenges since they are the “opening gate” to the paper (Lorés, 2004, p.281) or presentation in academic meetings. For instance, writers need to summarise a great amount of information in a limited number of words as well as draw their target audience’s attention. Furthermore, the use of English as a lingua franca is a practice so widespread worldwide in science and technology that abstracts in international, national and local journals or proceedings are also required to be in English for indexing purposes, even when the entire research article (RA) is in Spanish. Finally, as stated by Cross (2006, pp. 435-436), “[by] focusing on the abstract as a type of genre, it [is] hoped that the formal structure, communicative purpose and forms of linguistic realization

of the abstract” would be revealed. Hence, it is expected that informing the target discourse community about this genre would contribute to improve understanding and production of abstracts in the international community. Thus, the aim of this article is to report findings on the rhetorical structures and communicative purposes of the abstracts in this corpus and to compare them with existing models in English literature using IMRaD (Introduction, Methods, Results, and Discussion), CARS (Create A Research Space), and the combinatory models suggested by Swales (1981, 1990), Cross (2005), Dos Santos (1996) and Lorés (2004), respectively. These findings aim at informing practitioners and teachers about the characteristics and importance of this genre, raising consciousness about the benefits of genre studies and providing a platform for future pedagogical actions since no similar study has been carried out in this context.

Literature Review

Since Swales’ seminal work (1981) on genre analysis, genre studies have been a salient topic in ESP, and a growing body of research and literature has been published in this field (Bahtia, 1993, 2002; Biber, 2006, 2009; Biber et al., 2009; Bruce, 2011; Dudley Evans, 1998; Hyland, 2002, 2007; Holmes, 1997; Hyon, 1996; Johns, 2008; Lorés, 2004; Marín, 2016; Nwogu, 1997; Paltridge, 1997, 2001, 2012, 2013; Prestinoni de Bellora & Girotti, 2005; Salager-Meyer, 1990; Samraj, 2005; Swales, 1981, 1990, 2004, 2009).

Paltridge (2013, p.349) reflects that “genre analysis has moved beyond the structural and linguistic examinations of texts and aims at understanding social and contextual features of genres”; that is, genres and their surrounding contexts of production and reception, how texts are produced or produce specific goals focusing the analysis on specific setting and genre. Thus, analysing a corpus in a specific context would show “how language is used in the context” of particular genres (Paltridge, 2013, p.351).

In order to analyse a genre within a specific community or setting, the use of corpora is highly beneficial. Corpora, corpus-analytic tools and corpus evidence have been increasingly used in genre research in the last two decades (Bahtia, 2004, 2009; Belcher, 2011; Coxhead, 2000; Hewings, 2012; Hyland, 2006; Nesi, 2013; Paltridge, 2012; Swales, 2004). As Sinclair (1991, p.4) points out, “human intuition about language is highly specific, and not at all a good guide to what actually happens when the same people actually use language”. Thus, corpus studies are useful to inform language users and to aid ESP practitioners about the use of English in specific domains (Nesi, 2013, p.407). Furthermore, corpus studies provide a context that deepens the interpretation of results, which is a crucial aid in intercultural communication and studies.

Genre studies in intercultural communication aim at explaining how intercultural rhetoric influences first, second or foreign languages and cultures in text production (Connor & Rozycki, 2013, p.427). Since it is the communicative function of the genre which shapes it in terms of structure, style, content, and intended audience, any study of genre must be

culture-sensitive “[even] where genres themselves are shared between cultures, the ways in which each genre is constructed may vary” (Liddicoat, 2009, p.121). These variations may affect the understanding and construction of texts; consequently, genre analysis proves to be helpful by providing “a communication system for the use of writers and writing, and readers and critics in reading and interpreting” (Swales, 1990, p.42). This understanding is what supports and highlights the importance of this study. Hence, identifying and understanding the context of text production plays an important role to unveil meanings and communication purposes. Martin-Martin (2005, p. 220) adds to this idea by referring to the influence of English in EFL writers since scientific discourse is highly internationalised “as a result of the great influence that the discourse conventions of the international English-speaking academic community exert on scientific communication worldwide”. Consequently, analysis of the writing of abstracts as a genre shared by an international scientific-academic discourse community proves to be useful to inform teachers and participants about interactions across cultures, which in turn aims at improving communication since intercultural communication is one of the main aims in academia.

The origins of abstracts aiming at condensing scientific information date back to the 1830s publication of *Pharmazeutische Zentralblatt*. It was not until the 1960s that RA abstracts were introduced in medical journals (Silva Hernández, 2010). RA abstracts are currently considered to be of utmost importance in academia because readers decide to read a paper, buy an article, or read a conference proceedings based on the abstract (Marín, 2016; Moisaner et. al., 2006). Abstracts are studied as a genre since they are communicative events that consist of written texts with specific features such as stability and name recognition and fulfil a social function in a specific community of practice (Swales, 2004). That is, abstracts are recognised as a genre addressed to a specialised audience with its own formal requirements, such as title, author, text format. These specific features may be explicitly stated in the guide for authors of a journal, for example, or, in some cases, taken for granted. In general, abstracts tend to be written in a single paragraph without indentation and limited in length -between 100 and 250 words- (Cortés, 2013; Degelman, 2014; Marín, 2016; Prestinoni de Bellora et al., 2005; Swales, 2009); they should stand on their own, state what the RA or presentation is about, and attract readers to read the article (Björk, 1997; Glasman-Deal, 2010; Wallwork, 2011). Furthermore, preciseness, conciseness, uncriticality, coherence and legibility are among the characteristics mentioned by Degelman (2014) in the *APA style guide*.

RA abstracts are often classified according to their functional aims into informative, indicative, results-driven or summary driven. As expressed by Lorés (2004), there seems to be general agreement in grouping abstracts into: indicative (or descriptive) and informative. Indicative abstracts indicate the research findings without making judgements about the work or providing results or conclusions. They outline the general idea of the content of the text and the relevance of the study. By contrast, informative abstracts tend to be longer

because they provide an informative summary of the research –and the text they precede– by presenting key findings, explaining important results, and evaluating the work. Hence, abstracts of the first type are typically found in the social sciences and humanities and the second, in the hard sciences. Moisander et al. (2006) and Dueñas et al. (2012) agree that both indicative/descriptive and informative abstracts can be further divided into summary-driven and results-driven. That is, while results-driven abstracts highlight and put emphasis on key results, conclusions and contributions to attract readers' attention, summary-driven abstracts are more balanced and report an objective summary of the structure of the text they precede, represent or stand for.

Since Swales (1981), several linguists have referred to and described the structures of abstracts. Among the best-known frames in the Anglophone community, the IMRaD (Introduction, Methods, Results, and Discussion), the CARS (Create A Research Space) (Swales 1981, 1990, 2004; Cross, 2005 and Santos, 1996 respectively), and a combinatory structure of IMRaD and CARS (Lorés, 2004) can be mentioned. Before moving on to the analysis of these structures in this genre, the concept of *moves* should be introduced. In agreement with Cross et al. (2013, p.436), “[the] ‘move’ is closely related to the concept of ‘macrostructures’ as defined by Van Dijk (1980)”. Van Dijk’s (1977) concepts of text linguistics are key to understand the structure of this text type. He states that frames are structures of conventional knowledge about events that constitute the macro-structure. In the same vein, “moves represent the main themes of the text and aid the reader in selecting and understanding different meaning units contained therein” (Cross et al., 2013, p.436 quoting Endres-Niggermeyer, 1998, p.59). As a result, each proposition in a text should be interpreted in relation to the other macro-propositions and the macro-structure of the text (Kintsch, 1978, p. 70). Later, Swales (1981), Hopkins and Dudley-Evans (1988), Salager-Meyer (1990), among others, used van Dijk’s concepts as a starting point to describe the rhetorical structure or pattern of content organisation of abstracts by dividing the text into functional parts that contribute to the communicative purpose of the genre. Consequently, the rhetorical models described represent a general text structure that can be divided into moves and each move is the result of the combination of different sub-moves or *steps*, so the combination of what Swales calls *step* realise a move. Swales (1981) coined the term *move* to refer to these parts in his seminal work describing the four moves characteristic of RA introductions. Later, he himself in 1990 and others such as Bahtia (1993), Ventola (1994), Dos Santos (1996), Nwogu (1997), Martin-Martin (2002, 2005), Flowerdew (2002), Lorés (2004), Cross (2005), Samraj (2005), Kanoksilapatham (2007), Hyland (2007), Pho (2008), and Cortés (2013) adapted and adopted it to refer to the rhetorical structure and communicative purpose of other groups of texts, including abstracts. Since Swales does not provide a definition of move, Kanoksilapatham (2007, p.23) defines it as “a section of a text that performs a specific communicative function”. Thus, a move is a unit of analysis with specific language features that describes a sequential pattern of organisation of content in an

abstract. As Martin-Martin states,

[the] generic purpose of RA abstracts is to provide a summary of the content of the accompanying article; and the rhetorical goal which derives from this is to draw the reader to read the article, the writer needs to present it in a conventionalized form, by using a series of rhetorical strategies or moves. (Martin-Martin, 2005, p.60)

Nwogu (1997, p.122) and Swales (2004, p.20) agree that moves are text segments that can be realised by any linguistic structure such as a clause or by several sentences because a move is a functional unit -not a structural one- that signals the content of the text. Thus, this functional division of the structure of an abstract into moves contributes to the fulfilment of the overall communicative purpose of the genre, and each move has its own communicative purpose (Dos Santos, 1996, p.495; Cortés, 2015, p.35).

CARS Model

Swales, in 1981, presented four moves characteristic of RA introductions that, recognising some similarities between RA introductions and RA abstracts, he later revisited in 1990 and in 2004 to describe the moves present in a RA abstract:

- 1- Establishing a territory (field of study)
- 2- Establishing a niche (gap, problem, or hypothesis in previous research)
- 3- Occupying the niche (introducing the research and its relevance)

This set of moves realises the CARS model. In 1996, Dos Santos added some moves to Swales' model to complete his CARS framework for abstract analysis. Although, some authors argue that Dos Santos' model (Table 1) bears resemblance with the moves in the IMRaD model, the fact that it focuses on establishing a territory and a niche makes this structure to be categorised within this model.

Table 1. Explanation of Dos Santos's (1996) model for analysing abstracts.

Moves Function/Description
<i>Establishing the territory</i>
Move 1:
Situating the research
Setting the scene for the current research
Previous research (topic generalization) known about the field/topic of research
<STR> Setting the research
<i>Establishing the niche</i>

Move 2:

Presenting the research

Stating the purpose of the study.

What is the study Research question and/or hypothesis about?

<PTR> Presenting the research

Occupying the niche

Move 3:

Describing the materials, subjects, variables, procedures, methodology.

<DTM> Describing the methodology

Move 4:

Summarizing and reporting the main findings of the research.

<STF> Summarizing the findings

Move 5:

Discussing the research

Interpreting the results/findings

Mentioning possible recommendations, implications or applications.

<DTR> Discussing the research

IMRaD or IMRD Model

This model summarises the kinds of moves mentioned by Bahtia (1993), Flowerdew (2002), Swales and Feak (2004), Samraj (2005), and Hyland (2007). Although different authors named the moves differently, the general agreed structure of the IMRaD model includes the following moves: Introduction (also called background, aim or purpose), Methods, Results (or product) and Discussion (or conclusion). This model resembles the structure of scientific research papers representing a ‘summary’ of the article. As Cross et al. (2006, p.443) suggest, an abstract “must mirror the macrostructure of the parent document.” Thus, the essential function of abstracts within this model is to represent the main document in a condensed way. Cross et al.’s (2005, p.444) study describes this model (Table 2) with a five-move pattern:

Table 2. Explanation of Cross et al.'s (2005) model.

<p>Move 1: <i>(relation to other research)</i> It situates the research within the scientific community. (Introduction)</p> <p>Move 2: <i>(purpose)</i> It introduces the research by either describing the main features of the research or presenting its purpose. (Introduction)</p> <p>Move 3: <i>(methodology and materials)</i> It describes the methodology. (Methods)</p> <p>Move 4: <i>(summarizing the results)</i> It states the results. (Results)</p> <p>Move 5: <i>(discussing the research)</i> It draws conclusions or suggests practical applications. (Discussion)</p>
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Combinatory Structure

Lorés (2004), in her analysis, identifies that some abstracts use a ‘combinatory structure’ of the above models described. This model follows the general structure of the IMRaD model, but the Introduction has some of the moves (sub-moves in this model) characteristic of the CARS model. This is what some authors call move-embedding (Pho, 2008, p.238). Lorés (2004, p. 286) coins the term ‘combinatory structure’ and suggests the following move-structure for this model (Table 3).

Table 3: Description of Lore’s (2004) model.

<p>Move 1: <i>Introduction</i></p> <p>1.1. Establishing a territory 1.2. Establishing a niche 1.3. Occupying a niche</p> <p>Move 2: <i>Methods</i></p> <p>Move 3: <i>Results</i></p> <p>Move 4: <i>Conclusion</i></p>

In order to understand the reason behind the choice of one model or the other, Lorés (2004, p.284) and Dueñas *et al.* (2012) observed that the choice of different structures seemed to correspond to certain functional aims in abstracts. Therefore, they went one-step further and analysed the close relationships between rhetorical structures and functional aims of abstracts. Their analyses highlight that indicative abstracts tend to follow the CARS structure whereas informative abstracts display the IMRaD structure. In view of this study, Lorés (2004, p. 282) settles that the combinatory structure corresponds to the mixed type of informative–indicative abstracts.

In this study, I used these models, which are quite widespread in the Anglophone community, to analyse the abstracts written by a group of Spanish-speaking Argentinean researchers at UNSa who use EFL. This analysis aims at identifying their preferred structure, moves selected and functional aims. In addition, some insights into the reasons behind their choices and how context (or L1) affects production will also be also addressed.

Methodology

Participants

The research participants (RP) were a group of Spanish-speaking researchers or PhD students at UNSa who voluntarily agreed to participate in this study taking into account the research focus. They were contacted because they had participated in an EFL science writing course (intermediate level). They are Spanish-speaking scientists who write in English and have, in general, an intermediate writing level (tested in the science writing course entry diagnostic test). Although their levels in the different macro skills vary due to their different personal experiences and exposure to the target language, it is a fact that most of them are highly skilled readers in English since most universities in Latin America offer reading comprehension modules in English in undergraduate degrees. This situation is in agreement with Philipson's (1992, p.24) description: "In EFL countries [periphery countries], English is not a medium of instruction or government, but is learnt [...] for reading texts in the language". Due to the fact that they were researchers or PhD students, most participants have participated either in direct or indirect ways in publications in English and they aim at publishing in international journals in English. After explaining the purpose of this request and assuring them confidentiality, I asked them for abstracts that they had published or submitted in the last three years. All the participants voluntarily agreed to participate in this study, provided abstracts at their discretion following, and agreed with confidentiality issues.

Corpus Collection and Selection

In general, guidelines for authors in journals give broad details about length, language usage, and format issues of unstructured abstracts, so the writer has freedom to choose the type, the rhetorical structure and the style. However, when structured or extended abstracts are

required, these guidelines provide clear and complete instructions. This is the underlying reason why I selected 17 unstructured abstracts out of the 25 abstracts of different types that I received in order to create the corpus to study. The abstracts selected are in agreement with the following criteria: They are single paragraph abstracts preceding the RA -published in either national or international journals or in conference proceedings; they were accepted for publication or recently submitted. The abstracts collected belong to the field of Natural Sciences and similar fields: Chemistry (3), Biology (2), Natural Sciences (4), Geology (7), and Agriculture (1). Of the 17 abstracts, 12 were published at international level, 3 were published at national level and 2 abstracts were provided without stating where they were submitted. Bearing in mind that communication among scientists is communication among experts, the data collected constitute a corpus of authentic academic discourse.

In order to analyse the rhetorical structure of the texts in this corpus, I used the IMRaD, CARS (Swales 1981, 1990, 2004; Cross, 2005 and Dos Santos, 1996, respectively), and combinatorial structure (Lorés, 2004) for several reasons. First, most guidelines for authors suggest a structure similar to the IMRaD one. For example, the webpage of Elsevier (2016) recommends “[the] abstract should state briefly the purpose of the research, the principal results and major conclusions.” Thus, it is likely that abstract writers follow these guidelines. Second, Argentinean researchers usually publish in Spanish in local journals before they publish in international ones. Although some context-dependent variations specific of this genre occur, literature about the writing of abstracts in Spanish in Argentina such as Prestinoni de Bellora et al. (2005) or Marín (2016) also depicts similar structures to the above described. Since a structure equivalent to the IMRaD seems to be the most popular when writing in Spanish, it may become apparent that these writers emulate or transfer this structure when writing in English, as it is supported by Martin-Martin (2005) who reports that IMRaD is the model preferred by Spanish writers. As for the writing of abstracts in English in the target context, Pocovi et al. (2002) published a book to guide researchers at UNSa into the understanding of the linguistic features characteristic of abstracts in English. Since this book was published at UNSa, many of the target writers might be familiar with this book, which is divided into five chapters (Introduction, Methods, Results, and Conclusion) and contains sample abstracts in English. The structure of the book is a clear reference to the model preferred although the introductory chapter highlights the importance of creating a research space to state the research relevance, which bears similarity with the structure suggested for abstracts in Spanish and the combinatorial structure. Consequently, it might be hypothesised that this group of science writers might be prone to use either of these models (IMRaD – CARS) or a combination of both (‘combinatorial model’).

Analysis Methodology

As for the research methods, I systematically and objectively analysed the corpus identifying the model used in each text. Since I relied on a random sampling and data labelled to fit in

predetermined categories, the results provide statistical data that allowed me to go deeper into the analysis from the theory to the data. Thus, the aim is to report, summarise, compare and generalise results to be able to fill in the gap in the literature and plan future action.

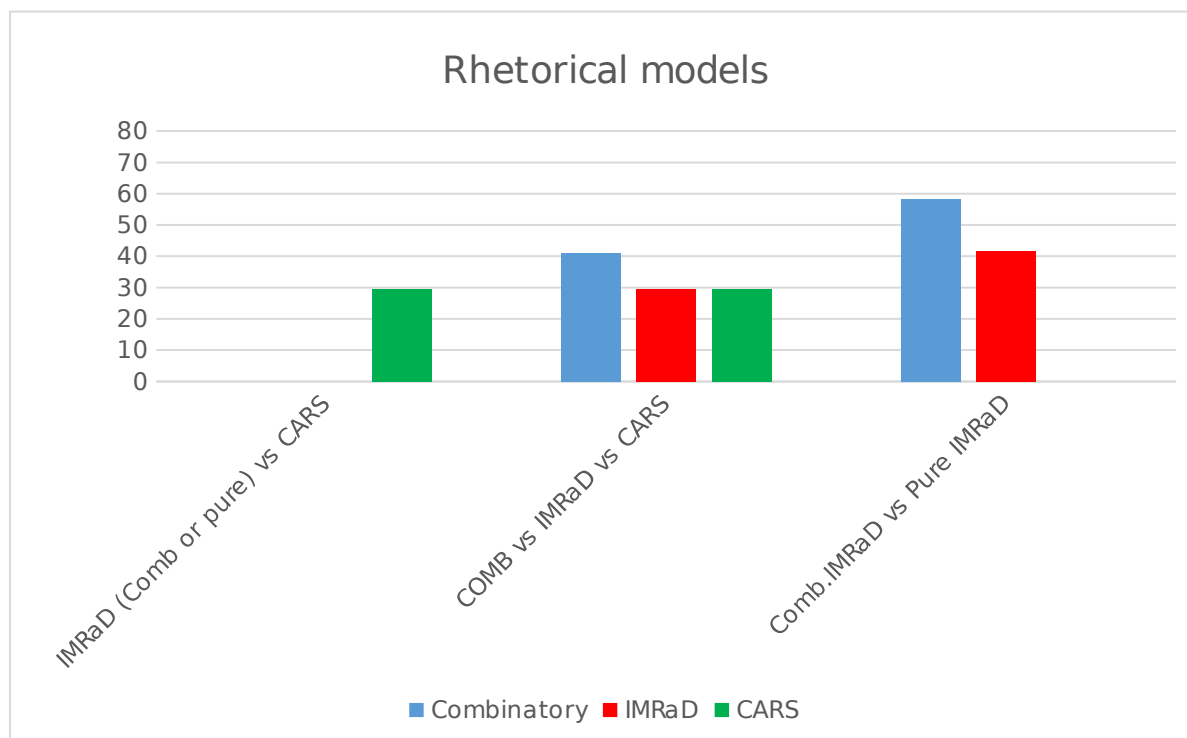
I analysed the data using deductive methods to confirm hypothesis or report discoveries (Allen, 2014). As for the steps I followed, first, I identified and coded the different stretches of text that indicate or depict the different moves using a systematic approach classification process of coding to represent meanings (Hsieh, 2005; Mayring, 2002). I marked their indicative expressions, the style markers and functional aim of every move present in each text. Then, I analysed the general structure of the texts and compared them with the models described above (IMRD, CARS, combinatory model), categorised each abstract, and identified the style used in each text. See Appendix A for a sample analysis of each of the models.

Results and Discussion

Rhetorical Structure Analysis

Corpus analysis yielded that 29.5% of the abstracts analysed follow the IMRaD model (which I call pure); equally, 29.5% display the CARS model, and 41% have a combinatory structure (IMRaD + CARS). See sample abstracts analysed in Appendix A. Thus, it is evident from these results that the writers of this corpus have a clear preference for a combinatory model. However, when comparing IMRaD and CARS models, the percentages are identical. Since the combinatory model is, in fact, the IMRaD model with some moves of the CARS structure -as sub-moves- in the introduction, I grouped the combinatory structure and the IMRaD model together to contrast it with the CARS model to go further in my analysis. The first group (pure IMRaD model and combinatory structure) represent 58% of the corpus, while 42% of the corpus follows the CARS model. Thus, it could be argued that there is a general preference for the IMRaD model, either pure or combinatory, as opposed to the CARS model. See table 4 below for a graphic description of the models analysed in this corpus.

Table 4. Rhetorical models.



These results bear some similarities with Lorés' (2004) research since there seems to be a general preference for the IMRaD model in her corpus. She analysed abstracts published in *Applied Linguistics* considering both the IMRaD and the CARS models and found that 61% of the abstracts followed the IMRaD model and 30.5%, the CARS structure. This corpus of texts from EFL writers in the Natural Sciences further supports Lorés' findings. However, she only found that 8% of the abstracts followed a combination of the two models, which she described as a 'combinatory' structure. In my corpus analysis, I found there is a striking preference for the combinatory structure, which seems to be a transfer from the writers' mother tongue since as Martin-Martin (2003) research expounds, this seems to be the preferred and most widespread structure in Spanish.

Following this analysis, I went deeper into the combinatory structure and found that each of the IMRaD moves had some sub-moves that seemed to fulfil a functional aim. It needs to be considered that these moves were realised by either a sentence, a series of sentences, a clause or even a phrase. For example,

"... aiming to produce an alternative medication for to treat **T. cruzi** infection." [Aim of the research] This move is realised by a non-finite clause.

"The aim of this work was to explore the sand flies presence from five localities of the north of Salta." [Aim of the research] This move is realised by a sentence.

"{DNA extractions were made} by a lysis buffer" [Materials]. This move (the introduction of materials used) is realised by a prepositional phrase.

As Cross et al. (2006, p.238) suggest, this realisation of the moves obeys to the compact nature of the abstract. Finally, the choice of moves and sub-moves in this structure seems to be optional, and different abstracts display sundry combinatory patterns. These findings also show some correlation with Martin-Martin's work (2003). He analysed RA abstracts in English and in Spanish in experimental social sciences and compared their rhetorical variation. Martin-Martin (2003, p.25) states that there is a general preference for the IMRaD model in Spanish abstracts stating that

the Spanish abstracts in this field largely follow the international conventions based on the norms established by English-speaking international academic community, as they present the four basic structural units (Introduction, Methods, Results, Conclusion) which constitute the different sections of the underlying research article. (Martin-Martin, 2003, p. 25)

These findings are useful to understand the apparent reasons why these Argentinean Spanish-speakers who write in English have a preference for the IMRaD model. Furthermore, Martin-Martin (2003) found that the introductions in the Spanish abstracts have more sub-moves that justify the scientists' work in their research field 'as a way of creating a niche', which is a move characteristic of the CARS model for introductions. This argument also brings light to the preference for a combinatory structure in my corpus. In general, the abstracts that display a combinatory structure tend to use the IMRaD model as the general abstract structure, but the CARS model is used in the introductory move to set the scene, establish the territory, create and occupy a niche.

Table 5 is a list of all the possible sub-moves identified in a combinatory model either in the corpus or in the literature. This list might be useful for pedagogical purposes or for science writers to be acquainted with the possibilities at their disposal when choosing the moves to include in their abstracts.

Table 5. Sub-moves in a combinatory model.

LIST OF SUB-MOVES FOUND IN A COMBINATORY MODEL

The following list of sub-moves results from the ones identified either in the literature available in the field (*) and in the corpus analysed (x).

1. INTRODUCTION * x
 - 1.1. SETTING THE SCENE *
 - 1.1.1. CONTEXT *
 - 1.1.2. BACKGROUD INFORMATION * x
 - 1.1.3. PREVIOUS RESEARCH * x
 - 1.2. ESTABLISHING A NICHE * x
 - 1.2.1. AIMS / PURPOSE / GOALS * x

1.2.2. PROBLEM ADDRESSED * x
1.3. CREATING A NICHE HYPOTHESIS / RESEARCH QUESTION / GAP OF KNOWLEDGE * x
1.3.1. STATING RELEVANCE OR NOVELTY OF THE PROBLEM ADDRESSED * x
2. METHODS * X
2.1. MATERIALS * x
2.2. SUBJECTS * x
2.3. MATERIALS * x
2.4. METHODOLOGY / ADAPTATION OF METHODS * x
2.5. PROCEDURES x
2.6. VARIABLES x
3. RESULTS * x
3.1. FINDINGS * x
3.2. ACTUAL RESULTS / PARTIAL RESULTS / EXPECTED RESULTS * x
3.3. SOLUTION / RESPONSE TO RESEARCH QUESTION / HYPOTHESIS PROVED / GAP FILLED IN * x
4. DISCUSSION * x
4.1. INTERPRETING RESULTS x
4.2. IMPLICATIONS x
4.3. APPLICATIONS * x
4.4. LIMITATIONS * x
4.5. RECOMMENDATIONS *
4.6. CONCLUSIONS * x
4.7. FUTURE WORK x

Style and Identity in Abstracts

“A text, whether written or spoken, is a performance of communication” (Liddicoat, 2009, p.124), which is a social construct developed in society. This construction implies the existence of a frame of expectations, values and assumptions that may be unveiled in the structure and linguistic choice in a text. Thus, the choices made by individuals as regards linguistic expressions or patterns of organisation are meaningful since they provide information not only about the text but also about the person who produced it. As Hyland (2012, p.18) states, discourse is central in constructing identities because “a voice associated with a particular field of study involves aligning oneself with its knowledge-making practices: the topics it believes are worth talking about and how it talks about them.” The preference for the combinatory structure reflects that this group of researchers’ functional aim is informative-descriptive when choosing how to ‘present’ their work. In the light of this finding, I also analysed in this study how the choice of style –personal or impersonal-

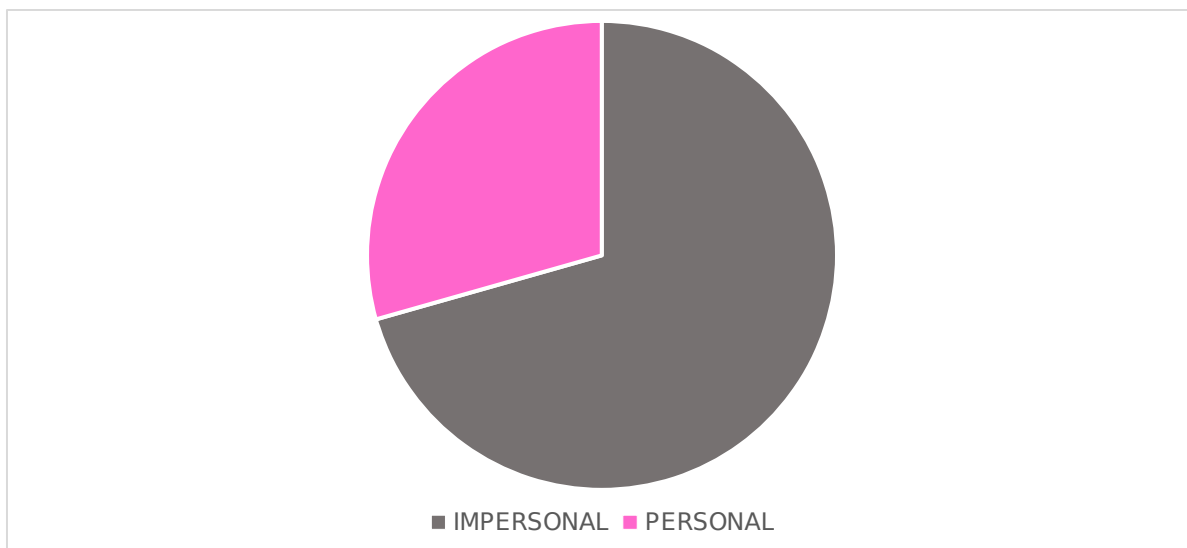
signals identity. It can be argued that a personal style introduces the writer as an agent and depicts the researcher as owner or producer of knowledge. By contrast, the impersonal style aims at highlighting objectivity, and, thus, the researcher adopts a secondary role. In order to analyse this corpus, I used Wallwork’s (2011, p.185) summary of styles (Table 6).

Table 6. Styles.

STYLE 1	I found that $x = y$.	➔ personal
STYLE 2	We found that $x = y$.	
STYLE 3	It was found that $x = y$.	➔ impersonal
STYLE 4	The authors found that $x = y$.	

The corpus shows that there is a clear preference for the impersonal style, irrespective of the model chosen. As many as 70.6% of the abstracts in the corpus use the impersonal style and only 29.4% of the corpus prefers the personal style. Figure 1 shows this graphic analysis. One of the reasons suggested for the choice of the impersonal style in this corpus can be related to cross-cultural issues. Although the preference of personal style in academic texts is a rhetorical strategy which is being increasingly used by the international English-speaking community to show a certain degree of self-confidence and authority, this emphasis on authorial voice might be perceived as a sign of arrogance or lack of humbleness among the Spanish-speaking community. Another reason behind this preference for the impersonal style in the abstracts analysed may be that this style is considered to be more objective among Spanish writers; consequently, many authors would regard the impersonal style as more ‘scientific’ and internationally accepted. This result is also in agreement with Cross et al. (2006), who state that Spanish-writers tend to follow international conventions more strictly.

Figure 1. Style.



Conclusion

This small-scale study shows that all the abstracts in this corpus follow the models proposed. A new finding is that there is a general preference for the combinatory structure identified by Lorés (2004), and this may be an effect of the writers' L1 Spanish background. This preference is supported when triangulating these findings with Cross et al.'s (2006) studies. Furthermore, sub-moves in the different moves of the IMRaD structure are listed in this study, which may be useful for science writers to understand the variety of choices at their disposal and for ESP practitioners to aid them in the understanding of the genre and planning of their classes. Another important finding worth mentioning is the preferred choice of style found in this corpus, which might be indicative of the position and the voice of the researchers in this area of study in this context. Both position and voice seem to be determined by conventions transferred from the writers' L1 and a disclosure of their own cultural identity.

Despite the value of these findings, there are of course limitations in this study to consider. First, this corpus consists of abstracts in only five areas of study. Thus, analysis of this genre in different areas should be carried out to have a broader perspective in this context. Second, further studies are necessary to determine the variables that affect the writers' choice of model. Finally, the corpus consists of a convenient sample of 17 abstracts, which is a limitation *per se* since results cannot be conclusive but orientating.

Despite these limitations, the findings are extremely relevant since it is an original study that has not been previously performed in this context. In addition, this analysis proves to be helpful to the understanding of abstract writing in the context analysed and it could set precedents for the writing of abstracts by scientists in Spanish-speaking countries. Furthermore, its most significant outcome is its pedagogical implication since genre instruction may greatly benefit non-native writers in English to improve their writing skills and communicative effectiveness, which is an area of research directly related to modern ESP pedagogy: the development of learners' genre awareness (Hünter et al., 2009, 2012; Forte, 2015). It is a fact that the lack of formal training in abstract writing increases poor writing, misunderstanding, and communication problems in scientific writing. In order to improve quality in the writing of abstracts in English by EFL learners, some training and genre awareness would be beneficial (Hyland, 2007). In addition, as Cortés (2013, p.35 quoting Dudley-Evans, 1995) and Pho (2008) suggest, genre instruction and rhetorical moves as part of a genre are useful to teach novice writers or EFL writers "to produce successful texts in that particular genre" and "to enter the discourse community of their discipline". Thus, academic writing workshops could be designed to share these findings and to present scientists who write in English all the rhetorical structures they have at their disposal to choose the ones that best fit their communicative purposes.

Acknowledgements: I would like to thank Dr. Sue Wharton, University of Warwick, for her

mentoring and encouraging support.

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Appendix A

1- IMRD MODEL SAMPLE

VIRTUAL CLASSROOM OF AGRICULTURAL CHEMISTRY

ABSTRACT: **[INTRODUCTION: setting or context. Aim of the paper]** Agricultural Engineering is taught in the Faculty of Natural Sciences, National University of Salta (UNSa). The curriculum includes the subject Agricultural Chemistry (QA), in this paper the results of the implementation of a virtual classroom in the academic performance of students in the first year of study are presented. **[METHODS: methods - materials - subjects. Also, the purpose for using this method is introduced with the 'to infinitive'.]** To evaluate the perception of the virtual learning environment Moodle student, a semi-structure survey was applied and the data were compared with the partial and final results of the course. **[RESULTS]** In general, active participation was correlated with academic success, but the final yield was not as good as expected considering the current advantages of information and communication in education. **[DISCUSSION/CONCLUSION: interpretation of results and limitations]** The main conclusion is that the virtual learning environment was used less than projected due to the lack of discipline of students and their lack of time management.

Published in the *International Journal of Innovation and Applied Studies, Innovative Space of Scientific Research Journals*, 2014, 8 (2), pp. 443-450. <http://www.ijias.issr-journals.org/>. ISSN 2028-9324.

Style: impersonal

2- CARS MODEL

Current drug therapy and pharmaceutical challenges for Chagas Disease

Abstract

[INTRODUCTION: It establishes the territory (field): It sets the scene and the context. Introduces the problem.] One of the most significant health problems in the American continent in terms of human health, and socioeconomic impact is Chagas disease, caused by the protozoan parasite *Trypanosoma cruzi*. Infection was originally transmitted by reduviid insects, congenitally from mother to fetus, and by oral ingestion in sylvatic/rural environments, but blood transfusions, organ transplants, laboratory accidents, and sharing of contaminated syringes also contribute to modern day transmission. Likewise, Chagas disease

used to be endemic from Northern Mexico to Argentina, but migrations have earned it global. The parasite has a complex life cycle, infecting different species, and invading a variety of cells - including muscle and nerve cells of the heart and gastrointestinal tract - in the mammalian host. Human infection outcome is a potentially fatal cardiomyopathy, and gastrointestinal tract lesions. In absence of a vaccine, vector control and treatment of patients are the only tools to control the disease. Unfortunately, the only drugs now available for Chagas' disease, Nifurtimox and Benznidazole, are relatively toxic for adult patients, and require prolonged administration. Benznidazole is the first choice for Chagas disease treatment due to its lower side effects than Nifurtimox. **[ESTABLISHING AND CREATING THE NICHE: Aim of the research. Some insight into the methods is provided. It introduces the research and what was done.]** However, different strategies are being sought to overcome Benznidazole's toxicity including shorter or intermittent administration schedules-either alone or in combination with other drugs. In addition, a long list of compounds has shown trypanocidal activity, ranging from natural products to specially designed molecules, re-purposing drugs commercialized to treat other maladies, and homeopathy. **[Aim of the paper and some insights into the results with its implications. It occupies the niche showing the relevance of the findings. (Its relevance has already been introduced in the first move).]** In the present review, **[we]** will briefly summarise the upturns of current treatment of Chagas disease, discuss the increment on research and scientific publications about this topic, and give an overview of the state-of-the-art research aiming to produce an alternative medication to treat *T. cruzi* infection.

Published in *Acta Tropica*, Elsevier, 2016, (156), pp. 1–16.

<http://dx.doi.org/10.1016/j.actatropica.2015.12.017>.

Style: personal

3- COMBINATORY MODEL SAMPLE

Sand flies captures and identification of Leishmania subgenus in Giemsa-Stained slides of patients from five localities of Salta, Argentina.

[INTRODUCTION: Background/Context. Setting the scene. Establishing the field.] Leishmaniasis is a disease which is endemic in 88 countries and in Argentina remains endemic in 9 provinces. It is caused by several species of flagellates parasites of the genus *Leishmania*. The wide spectrum of clinical manifestations depends on *Leishmania* spp and the host immunoresponse. **[Establishing a niche: Problem]** The parasite is transmitted by sand flies of Family Psychodidae, Subfamily Phlebotominae. In Argentina, many sand flies have been described, being the most important and suspected vector *Nyssomyia neivai* because it showed natural infection with *Leishmania* parasites. **[Background information**

about this topic and previous research carried out is mentioned to introduce the aim of the study and occupy a niche] In [our] country some Leishmania species were isolated Leishmania (Viania) braziliensis, Leishmania (Leishmania) amazonensis, L. (V.) guyanensis, L. (V.) panamensis associated to tegumentary leishmaniasis (TL); and L. (L.) infantum associated to visceral leishmaniasis. [Aim of study: Occupying the niche] The aim of this work was to explore the sand flies presence from five localities of the north of Salta. [METHODS: subjects (people and insects), methodologies (with the justification for this choice) and procedures, materials] Besides, patient samples from these areas, were analyzed in order to identify the causal agent. Sand flies were collected during one or six nights with CDC light traps. Traps were placed a meter above the soil and left since 18 pm to 7 am. Species identification of all collected sand flies was made by morphology of spermatheca and cibarium or external genitalia. Leishmania subgenus determination was carried out by PCR-RFLP assay. Seventy-six giemsa-stained samples diagnosed for TL in 2002 at Instituto de Investigación de Enfermedades Tropicales located in Orán, Salta were used. DNA extractions were made by a lysis buffer. The PCR primers L5.8S 5' TGATACCACTTATCGCACTT3' and LITSRn 5'CTGGATCATTTTCCGATG3' were used. For RFLP, amplicons were digested with HaeIII enzyme. [RESULTS/FINDINGS with details of percentages and locations] We captured 1352 phlebotomines, of which Ny. neivai represent the 76%, Mignonemyia migonei 12%, Evandromyia cortelezii complex 11% and Psathyromyia shannoni 1%. Ny. neivai was present in all localities studied. By PCR-RFLP, Viannia subgenus was the only identified. Regarding geographical cases distribution, 97% of them were from Orán, [DISCUSSION: interpretation of results, implications, conclusion, recommendations, applications] being this area the site with more cases and highest sand flies amount. Three sandflies species found in this study are considered as potential cutaneous leishmaniasis vectors, particularly of Viannia subgenus parasites. We propose PCR-RFLP in order to enhance the traditional diagnostic just because knowing the leishmaniasis causal agents would improve the treatment assignation and we suggest sandflies surveillance in these localities.