

Comparing Research Articles in English and Portuguese: An Intercultural Approach

Comparando Artigos Científicos em Inglês e Português: Uma Abordagem Intercultural

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Abstract

To understand how rhetorical organization works in different academic genres (Swales, 1990), Research Articles (RAs) for instance, in English and other languages, can help understand some of the challenges faced by authors from peripheral countries (Monteiro & Hirano, 2020), such as Brazil. This study presents the method used to compare the writing of RAs in American English and Brazilian Portuguese, using the Intercultural Rhetoric (Connor, 2011) as the theoretical approach. This was a mixed-method study that analyzed data both qualitatively and quantitatively. The method adopted enabled the achievement of data related to the macro-structure and micro-structure of RAs, and also helped to develop material that can be used by academics when writing and by writing instructors in the writing classroom.

Keywords: Intercultural Rhetoric, Applied Linguistics, Genre, Research Articles.

Resumo

Entender como a organização retórica funciona em diferentes gêneros acadêmicos (Swales, 1990), por exemplo, Artigos Científicos (ACs), em inglês e outras línguas, pode ajudar a compreender alguns dos desafios enfrentados por autores de países periféricos (Monteiro & Hirano, 2020), como o Brasil. Este estudo apresenta o método utilizado para comparar a escrita de ACs em inglês americano e em português brasileiro, utilizando a Retórica Intercultural (Connor, 2011) como abordagem teórica. Foi adotado no estudo método misto que analisou os dados tanto qualitativamente quanto quantitativamente. O método adotado possibilitou obter dados relacionados à macroestrutura e microestrutura dos ACs e também ajudou a desenvolver material que pode ser utilizado em sala de aula por professores de escrita acadêmica.

Palavras-chave: Retórica Intercultural, Linguística Aplicada, Gênero Textual, Artigos.

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Introduction

Communicating effectively in writing for research publication purposes has become crucial in academia due to the pressure faced by academics to get published. One of the reasons of such pressure is linked to the need of universities and research institutions to increase their scientific output to maintain and/or improve their position in international rankings (Lee & Lee, 2013). Publishing is relevant for scholars attempting to become visible to an international audience, apply for funding, advance in their career, and even to have a raise in salary (Curry & Lillis, 2019).

Writing for publication in any language is a challenge. However, the dominance of English for Research and Academic Purposes (Belcher, 2014) constitutes an extra workload for those whose English is an additional language. This issue is particularly critical for writers who often received little or no education on academic writing both in English and in their native language (Ferreira, 2016).

A study (Oliveira Neto, 2021) was conducted to compare the writing of whole Research Articles (RAs) in English and Portuguese using the concept of intercultural rhetoric (IR). The idea of performing the investigation emerged from the need to better understand the differences and similarities in the writing of American English and Brazilian Portuguese in the medical field. This article presents the methods adopted to conduct the research, mainly on how IR theory was used to compare a corpus of 20 complete RAs, being 10 articles from each language.

Background

This section includes a brief overview of the IR theory to contextualize the methods adopted in the study. Subsequently, some studies that compared the writing of RAs in English with other languages are presented.

Intercultural Rhetoric

IR is the study of written discourse of those who have the same communicative purpose, but who do not share the same language (Connor, 2011; Connor & Traversa, 2010). IR compares writing across languages to identify signs that show cultural influence

that may be adopted for pedagogical purposes (Atkinson, 2012). It has evolved from Contrastive Rhetoric (CR), which was introduced by the study of the applied linguist Robert B. Kaplan in 1966. Kaplan's study was a systematic analysis of the hypothesis that an individual's first language and culture influence the structure of his/her discourse (Connor et al., 2016). However, Kaplan's study was criticized given that he suggested that English native speakers were more direct and logical when writing paragraphs compared with non-native English speakers (Kubota, 2004). Critics claimed that CR lacks an accurate sensibility in terms of culture and promotes the idea of superiority of Western writing (Li, 2008). Given the negative connotation and critiques that CR had received, Ulla Connor suggested to change CR to IR (Connor, 2004). This new term would be more appropriated for including trans-cultural studies and enabling the comparisons of concept A in culture one and two. IR adopts traditional linguistic approaches for text analysis, such as genre analysis and corpus linguistic analysis. In addition, this theory suggests the introduction of ethnographic approaches to understand better the language in interactions (Connor, 2004, 2011).

Studies Contrasting Research Articles in Different Languages

The writing of RAs is approached in detail by John Swales in his seminal work "Genre analysis," from 1990. This work presents an overview of concepts correlated to academic discourse, including the construction of RAs. Swales introduced the CARS (Create a Research Space) model, which was revisited in 2004 in order to align it with studies that were published after the first model was published. Swales' studies also focused on furthering knowledge on non-native English speakers' writing of RAs (Swales, 1990; Swales, 2004). His investigation on RAs covered different fields of knowledge. However, in 1997, Nwogu focused on the medical field, extending Swale's model for introductions writing to the other sections of RAs. He analyzed complete medical RAs based on 15 manuscripts from five well-known medical journals - The Lancet, The British Medical Journal (BMJ), The New England Journal of Medicine (NEJM), The Journal of Clinical Investigation (JcLInv), and The Journal of the American Medical Association (JAMA). Nwogu created a model after identifying that a medical RA often includes 11 moves³⁶, and each move also has steps (Nwogu, 1997).

³⁶ A move was defined by Swales & Feak (2009, p. 5) as "a stretch of text that does a particular job. It is a functional, not grammatical term. A move can vary in length from a phrase to a paragraph."

Given the need to understand the conventions and features of academic discourse within different communities, RAs from different areas and languages have been analyzed by a large number of studies (Al-Khasawneh, 2017; Hirano, 2009; Hyland, 2004; Maher & Milligan, 2019; Motta-Roth & Marcuzzo, 2010), particularly based on the genre perspective³⁷.

Part of these studies has compared specific sections and the whole article in English with other languages. For example, (Taylor & Tingguang, 1991) contrasted RA introductions written by Anglo-Americans writing in English, Chinese writing in English, and Chinese writing in Chinese. (Sheldon, 2011) analyzed RA introductions written by English L1 and L2 writers, and Castilian Spanish L1 writers. Kanoksilapatham (2007) also investigated rhetoric moves in the whole RA written in English and in Thai. Hirano (2009) conducted a study that compared RA introductions written in English and Brazilian Portuguese. To date, however, studies and actions in Latin America aiming to help multilingual writers are still limited, particularly initiatives geared to novice writers with challenges in publishing internationally (Hirano, 2009; Monteiro & Hirano, 2020; Motta-Roth & Marcuzzo, 2010).

Studies on IR are helpful to scientific publish purposes, both national and internationally, since they may help to find possible patterns used in different languages, which might be used in pedagogical materials (Connor & Upton, 2004). For instructors, the studies on IR may represent an approach to be used with students in the academic writing classroom (Canagarajah, 2002).

The Present Study: A Method for Comparing Research Articles

The present article is based on a Master's thesis (Oliveira Neto, 2021) in which a mix-method (qualitative and quantitative) approach was implemented to compare the writing of RAs in American English and Brazilian Portuguese. The framework adopted in the thesis to compare rhetorical moves was the one created by Nwogu (1997) (Table 1).

³⁷ Genre [...] refers to a distinctive category of discourse of any type, spoken or written, with or without literary aspirations" (Swales, 1990, p. 33).

Table 1*Nwogu's' ordering of moves and their constituent elements*

Moves of each section of articles	Elements
<i>Introduction</i>	
Move 1: by	Presenting Background Information: (1) Reference to established knowledge in the field. (2) Reference to main research problems.
Move 2: by	Reviewing Related Research: (1) Reference to previous research. (2) Reference to limitations of previous research.
Move 3: by	Presenting New Research: (1) Reference to research purpose. (2) Reference to main research procedure.
<i>Methods</i>	
Move 4: by	Describing Data-Collection Procedure: (1) Indicating source of data. (2) Indicating data size. (3) Indicating criteria for data collection.
Move 5: by	Describing Experimental Procedures: (1) Identification of main research apparatus. (2) Recounting experimental process. (3) Indicating criteria for success.
Move 6: by	Describing Data-Analysis Procedures: (1) Defining terminologies. (2) Indicating process of data classification. (3) Identifying analytical instrument/procedure. (4) Indicating modification to instrument/procedure.
<i>Results</i>	
Move 7: by	Indicating Consistent Observation: (1) Highlighting overall observation. (2) Indicating specific observations. (3) Accounting for observations made.
Move 8:	Indicating Non-Consistent Observations:
<i>Discussion</i>	
Move 9:	Highlighting Overall Research Outcome:
Move 10: by	Explaining Specific Research Outcomes: (1) Stating a specific outcome. (2) Interpreting the outcome. (3) Indicating significance of the outcome. (4) Contrasting present and previous outcomes. (5) Indicating limitations of outcomes.
Move 11: by	Stating Research Conclusions: (1) Indicating research implications. (2) Promoting further research.

Source: Nwogu, 1997, pg 135.

The following sections present the methodological steps adopted in the study. Some challenges, implications and limitations are also provided.

Data Collection Procedures

The criteria for journal selection followed the characteristics suggested by a study conducted specifically to analyze RAs in the medical field (Nwogu, 1997). These characteristics were representativity, reputation and accessibility. In terms of representativity, the journals selected were published by well-known and referral hospitals, one in Brazil (Hospital Israelita Albert Einstein) and one in the United States of America (Mayo Clinic). Concerning reputation, both journals were peer-reviewed and indexed in MEDLINE³⁸.

The accessibility can be attested by on-line availability of the journals, and articles selected were published in 2019. Each text was tagged following a logical organization, for example, E meaning *einstein (São Paulo)* for the Brazilian Portuguese RAs, and M meaning *Mayo Clinic Proceedings* for English RAs. The code of the texts is followed by the number of the article in the corpus (1 to 10). This tagging should facilitate the identification of each text during data presentation and discussion.

Establishing The Corpus Size

The total corpus size was established using the Corpus Linguistics tool AntConc (Anthony, 2019) for Macintosh OS X 10.6-10.12 (3.5.8) (Waseda University, Japan). The size of the corpus in AntConc is automatically generated when a corpus is created within the tool. The tool provides the numbers of words (tokens) and number of different words (types) within a corpus. Finding out the size of the corpus might be useful for those trying to balance their corpus (Biber, 2007) and to establish a corpus sample representatives. In the study the size was established for information purposes only, *i.e.*, to provide more details about the corpora included.

³⁸ MEDLINE® is one of the most comprehensive databases for indexing biomedical literature. To be considered for analysis and indexing in this database, a journal needs to comply with several requirements, such as quality of content, quality of editorial board, geographic cover, and audience of the database (NATIONAL LIBRARY OF MEDICINE, 2020).

In the study, the factors considered to define the sample representativeness during the design of the corpus were genre (research article), field (general medicine), year of publication (2019), and source features (two medical journals published by two renowned hospitals, one in the USA and the other in Brazil).

Coding Moves and Steps

Move identification requires a systematic identification and coding of all moves (Kanoksilapatham et al., 2007). Moves were defined following Swales' concept (1990, 2004) that describes them as functional units of different lengths coded based on the purpose of the text. Steps were also defined following Swale's concept (Swales, 1990; Swales, 2004) and they detail the choices that writers made to conduct moves.

The study was conducted in two phases. The first included the training of two physicians who agreed to code the corpus along with the researcher. The volunteers were trained through video presentations containing a detailed explanation of the analytical framework used in this study (Table 2). A total of five two-hour videos, recorded by the researcher, were made available for the participants at the [YouTube](#), who signed an informal agreement written in Brazilian Portuguese providing consent to their participation in the study.

In the first phase, a total of three articles from each journal were coded, totaling six articles to assess intercoder reliability using the Gwet's AC coefficient to move assignment (Figure 1). This coefficient was adopted due to its higher sensibility for measurements that present imbalances between coders. The inter-rater reliability tests was adopted to measure whether the volunteers and the research rating were reliable, and the coefficient was used to measure reliability adopts the Altman's classification scale (T. 2) (Gwet, 2014).

Table 2

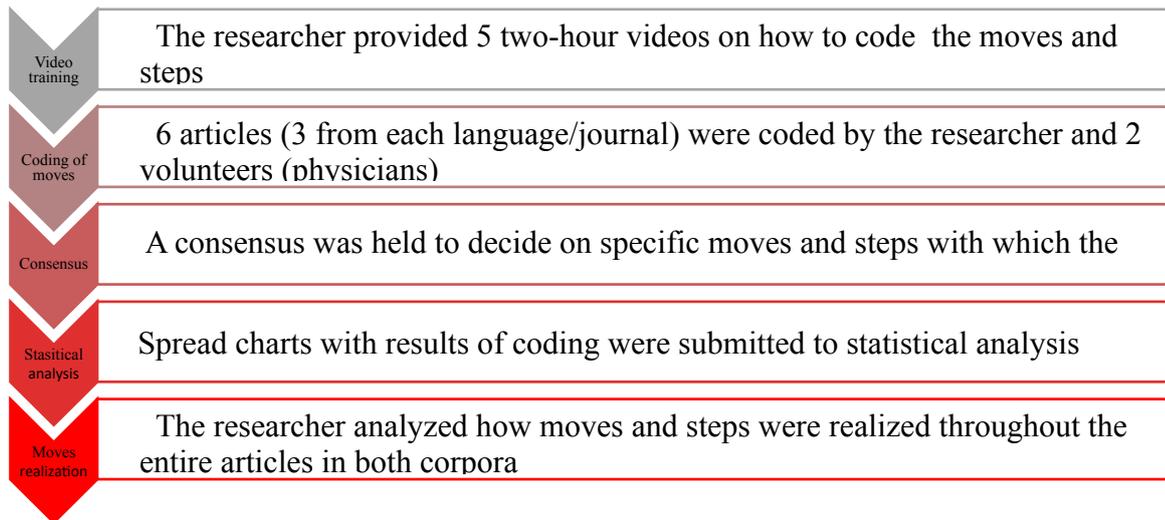
Altman's classification scale on interrater reliability coefficient

Altman's Classification	Strength of reliability
<0.2	Poor
0.2 to 0.4	Fair
0.4 to 0.6	Moderate
0.6 to 0.8	Good
>0.8	Very Good

The goal of determining intercoder reliability is to ensure that move demarcation was conducted in comparison to other experts in the field, as it has been done in previous studies (Kanoksilapatham et al., 2007; Nwogu, 1997; Williams, 1999)

Figure 1

First phase of the research design

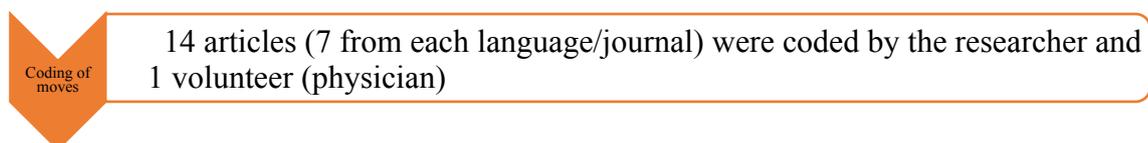


Source: Author's file

In the second phase, one of the physicians left the study due to personal reasons. The analysis of the 14 remaining articles (seven from each journal) were conducted by the researcher and the other volunteer physician (Figure 2).

Figure 2

Second phase of the research design

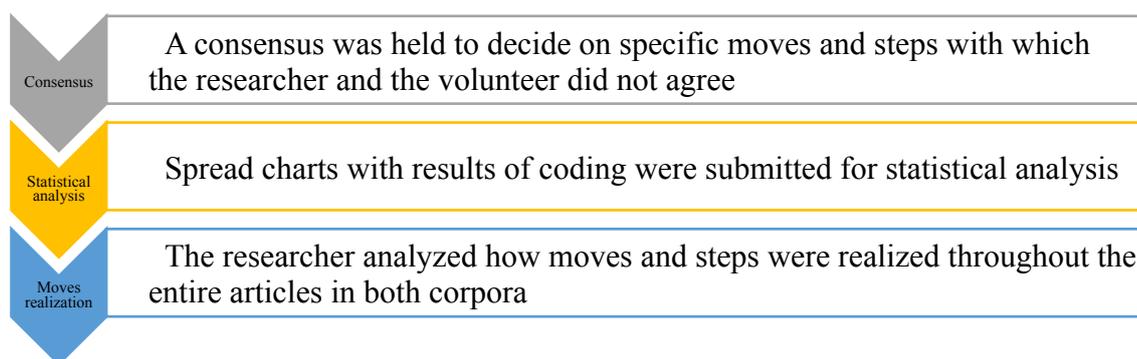


Source: Author's file

After the coding of all 20 articles to identify disagreements and to discuss possible unclear points, a consensus meeting was held between the volunteer and the researcher. After the coding, in both phases, each rater completed a spreadsheet to identify which moves and step of each article they found (yes) or not (no). Finally, the spreadsheet with moves and steps was analyzed by a professional statistician (Figure 3).

Figure 3

Consensus and statistical analyses



Source: Author's file

Distribution of Moves and Steps and Linguistic Features

The analysis of text segments was based on discourse markers (connectors and metadiscourse signals) and linguistic features (lexical meaning, lexicogrammar features, and lexico-grammatical patterns). The main goal of such analysis is to identify the rhetorical and/or communicative function of each segment in the corpus (Kanoksilapatham, 2007). In the study, a text segment was considered to be either a full sentence, part of a sentence, or phrase within a sentence (Swales, 1990, 2004). The identification of linguistic features was made mainly based on text comprehension, and inferences from the context.

Subsequently, to identify distribution of moves and steps found or not in both corpora, two tables were designed using Microsoft Excel after the consensus meetings in phases 1 and 2. The sign of + in green was used to indicate the moves and/or steps that were found, and the sign of - in red was used to show the moves and/or steps that were not found in the RAs. The identification of distribution of move and steps were used to understand in what extent the model proposed by Nwogu (1997) worked in the corpora of

the study. This recognition of distribution was particularly useful to find out what moves and steps were presented in each language.

Examples of coded files based on Nwogu's model (1997) are available at <https://bit.ly/3fM7LGn> in Brazilian Portuguese (Figure 4) and in American English (Figure 5). Different colors (red and blue) were used in coding to help readability, and each code means a move and step defined after the consensus between the expert and the researcher.

Figure 4

First page of coded article in Brazilian Portuguese

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Influência do tabagismo parental no consumo de álcool e drogas ilícitas entre adolescentes

Influence of parental smoking on the use of alcohol and illicit drugs among adolescents

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INTRODUÇÃO

A adolescência é um período de desenvolvimento caracterizado por várias mudanças biológicas, psicológicas e sociais, que podem predispor os jovens ao envolvimento com comportamentos de risco, como tabagismo, álcool e uso de drogas ilícitas.(1,2) Um dos fatores relacionados ao uso do cigarro na adolescência é o consumo de cigarro pelos pais.(3,4) Outra preocupação é que os adolescentes fumantes são mais propensos a consumirem drogas ilícitas, álcool(5,6) ou ambos.(7)

Apesar da relação bem estabelecida entre o consumo de tabaco dos pais e o uso de tabaco pelos filhos,(3,4) até agora não se sabe se o consumo de tabaco dos pais estaria associado com o uso de álcool e drogas ilícitas por seus filhos. Nem se tal relação também se aplicaria aos adolescentes não fumantes, visto que o uso de cigarro pelos jovens está associado com o uso de drogas ilícitas(6,8) e álcool,(5,6) sendo tais comportamentos considerados fatores de confusão e variáveis importantes a serem controladas.

Um ponto importante é que o uso de cigarros, álcool e drogas ilícitas pode começar na infância,(9,10) sendo crucial o monitoramento de fatores que possam aumentar os riscos de tal iniciação e, consequentemente, o desenvolvimento de doenças relacionadas a tais comportamentos, visto que estão diretamente associados com uma maior morbidade e mortalidade entre os adolescentes.(11)

OBJETIVO

Analisar a associação entre tabagismo parental e uso de álcool e drogas ilícitas dos filhos adolescentes.

Source: Author's file

Figure 5

First page of coded article in American English

OAmayo94(3)_2019_2

ORIGINAL ARTICLE

Severity of White Matter Hyperintensities and Effects on All-Cause Mortality in the Mayo Clinic Florida Familial Cerebrovascular Diseases Registry

Tasneem F. Hasan, MD, MPH, CPH; Kevin M. Barrett, MD; Thomas G. Brott, MD; Mohammed K. Badi, MD; Elizabeth R. Lesser, MS; David O. Hodge, MS; and James F. Meschia, MD

Among adults aged 60 to 90 years, 90% have white matter hyperintensities (WMH) on brain magnetic resonance imaging (MRI), and the severity of WMH increases with age.¹ In the elderly population, WMH are associated with cognitive impairment, gait disorder, and loss of global independence.² The burden of functional WMH has also been associated with poorer outcomes after stroke,³ and although deep and periventricular WMH may have divergent etiologies, they both have adverse effects on stroke outcomes.⁴ Further, an increased risk of parenchymal hematoma after mechanical (2.1) thrombectomy with first-generation devices has been reported in patients with moderate or severe WMH,⁵ but whether this relationship holds for thrombectomy with modern stent retrievers and aspiration catheters is not known.

White matter hyperintensities are associated with an increase in all-cause mortality in the general adult population. A meta-analysis of 4 population-based studies, including the Rotterdam and Framingham studies, revealed a significant correlation between WMH and mortality, as assessed by brain MRI (hazard ratio, 2.3; 95% CI, 1.9-2.8; P<.001).⁶

The purpose of this study was to test whether WMH severity, measured using a standardized clinical scale, was associated with all-cause mortality within a heterogeneous clinical population with cerebrovascular diseases (CVD).

PATIENTS AND METHODS
Study Population and Data Collection

The study cohort was a heterogeneous population enrolled in the Mayo Clinic Florida Familial Cerebrovascular Diseases Registry. Table 1 shows the qualifying diagnoses of participants in this study. The Registry is approved by the Mayo Clinic Institutional Review Board, and every participant provided written informed consent (IRB 08-003878). Between October 26, 2010, and October 5, 2017, the Registry had prospectively enrolled 1011 diverse participants from inpatient and outpatient neurology services along with all available and consenting adult relatives with and without CVD. Individuals aged 18 years and older and those who had either a diagnosis or a history of CVD, a family member with diagnosed CVD, and those unaffected by CVD were eligible to be enrolled into the Registry.

Source: Author's file

Benefits of the Method

The method used in the study enabled the identification of rhetorical movements and linguistic features of RAs in Brazilian Portuguese and American English as well as, the achievement of a good reliability for coding move and steps of a medical corpus. The

results achieved by using such methodology also led to the observation of implications related to academic writing and publication. For instance, the findings helped to observe what rhetorical strategies, both in terms of macrostructure and microstructure, were used in different parts of the articles that can support writers, particularly those who are attempting to publish in the field of general medicine.

The adoption of intercultural studies comparing languages may help researchers and those teaching writing for research and publication purposes to observe language characteristics and rhetorical structures.

The cross-linguistic and cross-cultural analysis of RAs may benefit the teaching of writing skills by using different approaches such as genre analysis (Swales, 1990) aligned with other perspectives, such as corpus linguistics tools (Belcher, 2014; Biber, 2007), to investigate grammar and other linguistic features within different genres and languages. Such approach also provides data on how different discourse communities (Swales, 1990) write, how to comply with rhetorical expectations of audiences in different languages, and how to detect writing strategies that are commonly used in one language, but not commonly adopted in the other (Alamri, 2020; Connor & Anna, 1999).

Challenges and Limitations of the Method

Challenges of adopting the method presented in this paper include the need of finding experts on the specific field, such as general medicine, to contribute with the research. This is particularly difficult given the nature of the activity, i.e., coding moves, which is extremely time-consuming. Other barriers are related to the time needed for training volunteers and conducting consensus meeting, as well as the necessity of having a professional statisticians to help with the statistical analysis of data. Nevertheless, currently, there are softwares that are able to provide statistical analysis, such as the software for mixed-method MAXQDA, Germany.

The findings of the study should be treated with cautious given the size of the sample and possible individual reflection of the experts and the researcher when coding moves. However, it is worth mentioning that this coding approach is widely adopted in the international literature (Samraj, 2016). Another limitation of the method is related to the adoption of a single model of moves/steps for the analysis of whole RAs (Nwogu, 1997),

given that other rhetorical organization models exist for specific sections of RAs, such as the result (Brett, 1994) and discussion (Dudley-Evans, 1994) sections.

Finally, the study did not suggest a revised move model for Brazilian Portuguese and American English for the general medicine field, although the present method is useful for this as well. Creating a model was not the goal of the master's thesis.

Conclusion

The method adopted in the study, particularly the analysis of data with an interrater reliability approach including experts from the field of medicine, and the comparison of similar genres by considering sample representativeness, such as genre, source, and field of knowledge, allowed the research to be situated within the IR perspective. The approach employed should be useful to explore not only one field, but multiple fields of studies as well different languages pairs, and even other genres that are required in academia.

In addition, the method used in the study helped to understand some culture issues in the writing of RAs in both studied languages, such as the higher tendency of English writers than Brazilian writers, for example, to contrast their studies with previous research and to establish more clearly the gap in the literature that they intend to study. The method presented also generated pedagogical data that might be helpful for instructors to improve their students' awareness of rhetorical differences and culture expectations when writing RAs in American English and Brazilian Portuguese.

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