

Daniela Moyetta*

Faculty of Languages
National University of Córdoba, Argentina
dmoyetta@fl.unc.edu.ar

THE DISCUSSION SECTION OF ENGLISH AND SPANISH RESEARCH ARTICLES IN PSYCHOLOGY: A CONTRASTIVE STUDY

Abstract

Since the appearance of Swales' (1990) CARS model to describe the rhetorical organization of research articles, several researchers have proposed different rhetorical structures for each of the canonical sections of this genre in different disciplines. However, little research has been conducted on the structural organisation of the discussion section from a contrastive perspective. This paper, therefore, reports on the rhetorical organization of the discussion section of English and Spanish research articles in the field of Psychology using Swales' (1981, 1990) model of analysis. Even though the general results reveal that there are similarities between English and Spanish discussions in terms of the use of moves, some differences were also noted. The analysis of the English corpus showed that *Providing background information*, *Stating results*, *Referring to previous research* and *Providing explanations* were obligatory moves, while the analysis of the Spanish corpus revealed that only two moves could be considered obligatory: *Stating results* and *Referring to previous research*. Based on these findings, a single-level move structure consisting of eight moves is proposed for the articles in the corpora. The sequence of identified moves can be useful to native and non-native writers and may enhance the design of ESP course materials.

87

Key words

research article, genre analysis, discussion section, English, Spanish.

* Corresponding address: Daniela Moyetta, Santa Rosa 938, Piso 9, Dpto F, X5000EST, Córdoba, Argentina.

Sažetak

Od pojave Svejlzovog (1990) CARS modela za opis retoričke organizacije naučnih članaka, nekolicina istraživača predlagala je različite retoričke strukture za svaki od utvrđenih delova ovog žanra u različitim disciplinama. Međutim, malo se istraživača bavilo strukturnom organizacijom odeljka namenjenog diskusiji sa kontrastivnog stanovišta. Zato se u ovom radu, koristeći Svejlzov (1981, 1990) model analize, bavimo retoričkom organizacijom odeljka za diskusiju u naučnim člancima na engleskom i španskom jeziku iz oblasti psihologije. Mada opšti rezultati analize ukazuju na sličnosti između diskusija na engleskom i onih na španskom u pogledu korišćenja retoričkih etapa, uočene su i izvesne razlike. Analiza engleskog korpusa pokazala je da su etape *Predstavljanje konteksta*, *Iznošenje rezultata*, *Pozivanje na prethodna istraživanja* i *Pružanje objašnjenja* obavezne, dok je analiza španskog korpusa otkrila da se samo dve etape smatraju obaveznim: *Iznošenje rezultata* i *Pozivanje na prethodna istraživanja*. Na osnovu dobijenih nalaza predlažemo jednostepenu etapnu strukturu za članke u korpusu, koja se sastoji od osam etapa. Redosled uočenih etapa može biti od koristi autorima izvornim govornicima i autorima kojima engleski nije maternji jezik, te može unaprediti proces osmišljavanja materijala za nastavu engleskog jezika struke.

Ključne reči

naučni članak, analiza žanra, odeljak za diskusiju, engleski, španski.

1. INTRODUCTION

There are a number of genres that circulate within the scientific community; however, it is the research article (RA) that is considered “a key product of the knowledge-manufacturing industry” (Swales, 1990: 125). What is more, as English has established itself as the international language of science and technology (Grabe & Kaplan, 1996), RAs written in this language have become a rhetorical tool to access international discourse communities. Hence, native and non-native researchers who want to actively participate in the creation of knowledge must be able to read and write RAs in English. To do so, they need to be aware, among other linguistic features, of the rhetorical conventions used in their areas of research (Johns, 1997; Kanoksilapatham, 2005).

There has been great interest in disentangling the rhetorical structure of the canonical sections that constitute the widely and traditionally reported IMRD framework (Swales, 1990) as the number of studies in the field of Genre Analysis shows. Samraj (2002, 2005) studied the introduction in two related fields of

Biology. Lim (2006) developed a detailed framework for the methods section of Management RAs. Thompson (1993) in Biochemistry, and Brett (1994) in Sociology focused on the results section of RAs. The discussion section has also been scrutinised. Dudley-Evans (1994), Holmes (1997), and Peacock (2002), for instance, proposed a number of communicative categories for RAs in different disciplines. Other studies have focused on the whole structure of the RA; for example, Nwogu (1997) in Medicine, Posteguillo (1999) in Computer Science, and Kanoksilapatham (2005) in Biochemistry.

The RA rhetorical structure has also interested scholars in the field of Contrastive Rhetoric. Since the publication of Kaplan's (1966) pioneering paper, a great deal of attention has been paid to cultural and linguistic differences between the written productions of students of English as a second language and the written productions of English native speakers. In the context of Genre Analysis, cross-cultural studies of scientific writing have identified differences in the rhetorical organisation and linguistic realisations between English and Spanish (Moreno, 1997; Martín Martín, 2003; Mur-Dueñas, 2007; Soler-Monreal, Carbonell-Olivares, & Gil-Salom, 2011). These differences may constitute a source of potential problems for Spanish speaking students of English as a second language.

The structure of the discussion section has been explored by several authors, who have proposed different move sequences. Hopkins and Dudley-Evans (1988) provided a detailed move analysis to describe, from a pedagogical point of view, the organisation of discussion sections in articles published in the fields of Irrigation and Drainage. They found only one obligatory move, *Statement of result*, plus ten moves that appeared as optional. Swales (1990) suggested a list of eight moves as framework for the discussion section: *Background information, Statement of results, (Un)expected outcome, Reference to previous research, Explanation, Exemplification, Deduction and hypothesis, and Recommendation*. In a modification of his previous work, Dudley-Evans (1994) devised a nine-move model for the discussion section. He proposed the following moves: *Information move, Statement of result, Finding, (Un)expected outcome, Reference to previous research, Explanation, Claim, Limitation, and Recommendation*. Holmes (1997) examined the structure of the discussion section of History, Political Science and Sociology RAs using a modified version of Hopkins and Dudley-Evans's (1988) model to analyse thirty RAs. He found that the structure of the discussion was constituted of the following moves: *Background information, Statement of result, (Un)expected outcome, Reference to previous research, Explanation of unsatisfactory result, Generalization, Recommendation, Outlining parallel or subsequent development*. Peacock (2002) analysed 252 published RAs from seven disciplines. Using the methods proposed by Dudley-Evans (1994) and Holmes (1997), he focused his analysis on organisation and patterns so as to identify moves by a combination of linguistic evidence and text comprehension. He found that the most frequent move was *Claim*, followed by *Finding* and *Reference to previous research*. Swales (2004) revised his previous work in the light of the contributions made by

other authors. He restated the result that discussions are “primarily devoted to reviewing the results presented earlier, often in serial order, and often starting with the ones that authors consider important” (Swales, 2004: 235). However, he pointed out that a major problem for analysis is the inconsistency of the nomenclatures. Nwogu (1997), whose research gave shape to the overall structure of the RA in Medicine, presented three moves for the discussion section: *Highlighting overall research outcome*, *Explaining specific research outcomes*, *Stating research conclusions*. In a similar vein, Kanoksilapatham (2005), when exploring the complete schematic structure of the RA in Biochemistry, identified four moves as the constituents of the discussion in that field: *Contextualising the study*, *Consolidating results*, *Stating limitations of present study*, *Suggesting further research*. Yang and Allison (2003) explored the way in which empirical RAs from Applied Linguistics proceed from presenting results to drawing conclusions. They presented a seven-move framework for the discussion section: *Background information*, *Reporting results*, *Summarising results*, *Commenting on results*, *Summarising the study*, *Evaluating the study*, *Deductions from research*. They found that *Commenting on results* occurred significantly more often than the other moves.

Although several researchers have proposed different rhetorical structures for the discussion section in different disciplines, no report, to my knowledge, has specifically dealt with the structural organisation of discussions in Psychology RAs from a contrastive perspective. The present study was, thus, designed to not only examine the rhetorical organisation of English and Spanish Psychology RAs discussion sections but also propose a move structure for this section in these two languages. The following questions are addressed in the paper:

- 1) *What are the rhetorical structures of the discussion section in English and Spanish Psychology RAs?*
- 2) *What are the similarities and differences between the discussion sections written by researchers who publish in Spanish and work in Argentinean universities, and the discussion sections written by researchers who publish in English and work in American and British universities?*

2. THE STUDY: CORPUS AND METHODOLOGY

The present contrastive study made use of two independent but comparable corpora made up of research articles of psychology in English and in Spanish. To control for possible sub-discipline variation, texts belonging to two representative sub-disciplines were collected: Educational Psychology and Clinical Psychology. The corpus in English was made up of 10 discussions from two well-known journals: *Contemporary Educational Psychology* and *Journal of Anxiety Disorders*. Likewise, the corpus in Spanish consisted of 10 discussions in Spanish, which were

selected from two leading Argentinean journals: *Anuario de Investigaciones de la Facultad de Psicología (Universidad de Buenos Aires)* and *Interdisciplinaria*.

To ensure a representative sample in each corpus of the present study, the selected texts had to be produced by authors who publish in English and work in British or American universities and authors who publish in Spanish and work in Argentinean universities. This also ensured that the exemplars fulfilled the standards of the English and Spanish languages used in the academia. The size of the sample (20 RAs) was deemed to be appropriate since other researchers (Ozturk, 2007; Lim, 2006) considered this number large enough to determine the existence of conventional and optional moves in the structure of different sections in research papers.

To make sure the selected RAs enjoyed high reputation, conscious effort was made to choose texts from prestigious journals:¹ *Contemporary Educational Psychology* and *Journal of Anxiety Disorders* for the English corpus, and *Anuario de Investigaciones de la Facultad de Psicología (Universidad de Buenos Aires)* and *Interdisciplinaria* for the Spanish corpus. The *Anuario de Investigaciones de la Facultad de Psicología* publishes studies from researchers working at the Buenos Aires School of Psychology, whose overall subject matter is related to Psychology from different discipline perspectives. This journal is refereed by local and international reviewers and evaluated by CONICET². *Interdisciplinaria* is a journal dedicated to the publication of research results in the area of Psychology and its related disciplines and it is also refereed by local and international referees. With respect to the period of publication, the corpus was restricted to a period of three years so as to control for rapid changes within the discipline (only articles from 2006 and 2009 were selected). Finally, to qualify as accessible for selection, the texts had to be published in scientific journals appearing in the online SECyT (Secretaría de Ciencia y Tecnología) library or on Scielo Scientific Electronic Library and had to be of free access. The articles in the corpus were coded for ease of identification (see Appendix). Each RA in the corpora was identified by a letter and a number, where “E” stands for English and “S” for Spanish.

The method used to answer the research questions involved applying the procedures proposed by Dudley-Evans (1994) and Holmes (1997); these are: (a) the identification of the moves in the discussion section of each RA using a combination of linguistic evidence and text comprehension, (b) the analysis of each sentence of the section, (c) the assignment of the sentences to a move, (d) the analysis of the frequency of appearance of each move, (e) the determination of the possible occurrence of categories not found in previous studies, and (f) the validation of the classification by testing inter-rater and intra-rater agreement.

¹ By ‘prestigious journals’ it is meant those included and ranked in the indexes compiled by the Journal Citations Report, which usually have an impact factor.

² CONICET is an Argentinean institution whose main objective is to promote science and technology.

For this study, the researcher created an *ad hoc* taxonomy of moves according to the models discussed in the theoretical framework. Following Dudley-Evans (1994) and Holmes (1997), two randomly chosen RAs (one in English and one in Spanish) were examined in order to describe their overall purpose. Then, a more thorough analysis was carried out, using models employed in previous research, in particular those employed in Hopkins and Dudley-Evans (1988), Swales (1990), Dudley-Evans (1994), Holmes (1997), Nwogu (1997), Peacock (2002), Yang and Allison (2003), and Kanoksilapatham (2005).

In order to show what the authors were trying to do with the discourse, *-ing* phrases were used to name the moves (Yang & Allison, 2003). In other words, the researcher's objective in using *-ing* forms was to highlight the function of the discourse segment.

The unit of analysis for the discussions that make up the corpora was the sentence. Each of the sentences was assigned to one of the moves in the taxonomy created *ad hoc*:

- 1) *Providing background information* (Swales, 1990)
- 2) *Stating results* (Swales, 1990; Dudley-Evans, 1994)
- 3) *Referring to previous research* (Holmes, 1997)
- 4) *Providing explanations* (Peacock, 2002)
- 5) *Exemplifying* (Hopkins & Dudley-Evans, 1988)
- 6) *Making overt claims or generalisations* (Kanoksilapatham, 2005)
- 7) *Indicating limitations* (Dudley-Evans, 1994)
- 8) *Making recommendations* (Dudley-Evans, 1994) and
- 9) *Indicating research implications* (Nwogu, 1997).

The frequency of the moves in the discussion section of the corpora was recorded. The objective was to determine if a particular move occurred frequently enough to be considered conventional. In this regard, and following Nwogu (1997), the cut-off frequency of 50% of occurrence was established as a measure of move stability (or regularity). If the move occurred in 50% of the texts in each corpus, it was considered as "conventional". If the frequency of the move was below 50%, it was considered "optional". Within the conventional moves, a sub-categorization was established: "quasi-obligatory".

In order to validate the preliminary findings, an inter-coder reliability analysis was conducted. To ensure that the coders had an understanding of genre analysis and, more specifically, of move identification, three colleagues, who are acquainted with move-based studies, were asked to code one quarter of the corpora (Crookes, 1986) by following the nine-move structure adopted for analysis. The results obtained by the raters were recorded using the SPSS software and then compared with the results obtained by the researcher. Finally, a test for intra-rater agreement was conducted by reclassifying one quarter of the corpora

three months after the initial coding. To assess both inter-rater reliability and intra-rater reliability of move classification, the Kappa coefficient was used.

3. FINDINGS

The quantitative analysis enabled the researcher to demonstrate that discussions in English and in Spanish RAs consist of eight moves. At the same time, the analysis made it possible to determine the existence of some similarities and some differences regarding the frequency of occurrence of each move in English and in Spanish. The reliability index for both inter-rater and intra-rater agreement (see Table 1 below) was found to be around .75.

Inter and Intra Reliability Tests	Kappa Value
Inter-Reliability Coefficient: Researcher - Rater 1	Kappa .796
Inter-Reliability Coefficient: Researcher - Rater 2	Kappa .762
Inter-Reliability Coefficient: Researcher - Rater 3	Kappa .696
Intra-Reliability Coefficient	Kappa .870

Table 1. Inter- and intra-reliability tests results

Taking into consideration that Kappa values of less than .40 show poor agreement, values of .40 to .60 suggest fair agreement, values of .60 to .75 represent good agreement, and values greater than .75 indicate excellent agreement (Watkins & Pacheco, 2000), the results for the inter-rater and the intra-rater tests can be judged as reliable.

In order to answer the first research question posed for this study: what is the rhetorical structure of the Discussion section in English and Spanish Psychology RAs?, the frequency of occurrence of each individual move in the two corpora was recorded. The purpose was to determine whether the moves in the taxonomy were present in the texts and whether the ones that were present occurred frequently enough to be considered “obligatory” (Li & Ge, 2009).

In general, the nine moves of the taxonomy were found to occur with varying degrees of regularity in the corpora (See Tables 2 and 3). As a result, these moves were classified as “obligatory”, “quasi-obligatory” or “optional”.

As can be seen in Table 2, four of the moves (1, 2, 3, and 4) were found to occur in all the texts in the English corpus; therefore, they were classified as “obligatory”. Moves 7 and 8 were found to occur in nine of the ten texts examined and Moves 6 and 9 occurred in eight texts; consequently, these four moves were classified as “quasi-obligatory”.

TEXT	MOVE 1	MOVE 2	MOVE 3	MOVE 4	MOVE 5	MOVE 6	MOVE 7	MOVE 8	MOVE 9	TOTAL
ERA1	+	+	+	+	-	+	+	+	+	8
ERA2	+	+	+	+	-	+	+	+	-	7
ERA3	+	+	+	+	-	+	+	+	+	8
ERA4	+	+	+	+	-	-	+	+	+	7
ERA5	+	+	+	+	-	+	-	+	+	7
ERA6	+	+	+	+	+	+	+	+	-	8
ERA7	+	+	+	+	-	+	+	-	+	7
ERA8	+	+	+	+	-	+	+	+	+	8
ERA9	+	+	+	+	-	+	+	+	+	8
ERA10	+	+	+	+	+	-	+	+	+	8

Table 2. Distribution of moves per text in the English corpus

In general terms, the overall analysis of the texts in the English corpus reveals that authors seemed to be likely to:

1. Provide background information
2. State results
3. Refer to previous research
4. Explain
5. Make claims
6. Indicate limitations
7. Recommend
8. Indicate research implications

As can be seen in Table 3, in the Spanish corpus, Moves 2 and 3 can be considered “obligatory” because they occur in the ten texts analysed. Move 8, which was found to occur in nine texts, Moves 1 and 7, which were found to appear in eight texts, and Move 6, which appears in 6 texts, were classified as “quasi-obligatory”. Finally, Moves 4 and 9 were considered as “optional” since they occur in five texts.

TEXT	MOVE 1	MOVE 2	MOVE 3	MOVE 4	MOVE 5	MOVE 6	MOVE 7	MOVE 8	MOVE 9	TOTAL
SRA11	+	+	+	-	-	+	-	+	+	6
SRA12	+	+	+	+	-	-	+	+	+	7
SRA13	+	+	+	-	-	+	-	+	-	5
SRA14	+	+	+	-	-	+	+	+	+	7
SRA15	+	+	+	-	-	-	+	+	-	5
SRA16	+	+	+	+	-	+	+	+	+	8
SRA17	-	+	+	+	-	+	+	+	-	6
SRA18	+	+	+	-	+	-	+	+	-	6
SRA19	-	+	+	+	-	-	+	-	+	5
SRA20	+	+	+	+	-	+	+	+	-	

Table 3. Distribution of moves per text in the Spanish corpus

In general, Spanish writers were likely to:

1. Provide background information
2. State results
3. Refer to previous research
4. Make claims/Generalise
5. Indicate limitations
6. Recommend

In order to answer the second research question: what are the similarities and differences between the discussion section written by Argentinean scholars and the discussion section produced by American and British scholars?, each of the moves in the taxonomy was analysed from the point of view of the function they fulfil in the texts, paying attention to specific linguistic cues.

In both corpora, *Providing background information* (Move 1) was used to strengthen the discussion by recapitulating main points, highlighting theoretical information, or reminding the reader of technical information (Swales, 1990). It was usually found as the opening move, but it also appeared in different parts of the discussion. Furthermore, it was found to be “obligatory” in the English corpus, but “quasi-obligatory” in the Spanish corpus.

(1) The purpose of this research was to examine the effect of seductive details on recall, understanding, and reading time for a technical, expository text. We evaluated the results with respect to the reduced attention, coherence break, and inappropriate schema hypotheses. The reduced attention hypothesis states that seductive details interfere with comprehension by drawing away attention from base text information. (...) (ERA 5)

(2) Este trabajo se propuso analizar la relación entre los mecanismos léxicos y fonológicos puestos en juego en el proceso de adquisición de la escritura en español. Para ello, se examinaron las estrategias empleadas por los niños en tareas de escritura de palabras en el primero y segundo año de escolaridad. (SRA 12)

The move *Stating results* (Move 2) was usually used to report findings and to highlight the major results obtained from the study. It was found to be “obligatory” in both corpora.

(3) Our results suggest that for problems of lower complexity, self-efficacy was related to quicker problem solving and may improve performance without increasing problem-solving time. (ERA 4)

(4) Los resultados obtenidos permiten sustentar esta hipótesis, dado que se verificó la ocurrencia de una correlación positiva entre el AE e inteligencia general (en la CF), y no se encontraron asociaciones significativas entre AI e inteligencia general (ni en la CF ni en la CA). (SRA 14)

Researchers used the move *Referring to previous studies/Research* (Move 3) to compare their results to those reported in previous studies in order to confirm their own results (Holmes, 1997), evaluate their data in the light of previous research (Swales & Feak, 1994) or find gaps in previous studies that provided support for their own findings. The quantitative analysis showed that this move is “obligatory” in both languages.

- (5) At any rate, the results lend credence to the claims that interests purely based on surface features are different from those based on deeper levels of understanding (Alexander, 2004), and that having a deep grasp of the meaning of a text or object itself tends to make the text or object more interesting as Brunner (1960) suggested decades ago. (ERA 1)
- (6) Estos resultados son similares a los reportados por Signorini y Piacente (2001) para la lectura, que proponen que la formación de las representaciones léxicas en español comienza en un nivel sub-léxico. (SRA 12)

The following examples illustrate the cases in which *Referring to previous studies* is used to find gaps in previous research, so as to strengthen one’s own study. It is worth noticing that this function is only realised in the Spanish corpus.

- (7) Los resultados obtenidos en esta investigación en comparación con los obtenidos en estudios previos sobre la comprensión espontánea de la función simbólica de maquetas (escala similar) y fotografías (Peralta y Salsa, 2003; Salsa y Peralta, (2007) demuestran la mayor complejidad de los mapas en cuanto a su comprensión espontánea por niños pequeños, ya que la misma tiene lugar recién cerca de los 4 años de edad. (SRA 13)

In *Providing explanations* (Move 4), writers give reasons for the expected or unexpected results obtained from their studies. To do so, they justify, interpret, clarify, and/or paraphrase. This move appeared to be more frequent in English than in Spanish.

- (8) One explanation is that the two constructs represent two interrelated psychological realities: individuals with high NFC tend to be more cognitively and affectively involved, and thus are more likely to espouse transactional belief as an implicit model of reading; conversely individuals with low NFC are more likely to endorse transmission beliefs. (ERA 1)
- (9) En otras palabras, para comprender un objeto simbólico es preciso cierto nivel de flexibilidad cognitiva que permita a los niños mantener dos representaciones mentales activas al mismo tiempo y establecer relaciones entre una y otra. (SRA 13)

Throughout the analysis, it was found that *Exemplifying* (Move 5) is the least frequent in both corpora; it appeared in two texts in the English corpus and in only one text in the Spanish corpus. As *Providing examples* is usually used as a strategy to support explanations (Zamudio & Atorressi, 2000), it was deemed appropriate to consider this move as embedded in Move 4; therefore, Move 4 and Move 5 were merged into one: *Explaining*.

Making claims or Generalising (Move 6) was found to be “quasi-obligatory” in both corpora. Its main function is to highlight authors’ research contributions as a way of consolidating their work; it can also serve to emphasise the strengths of the study, to summarise salient results or to conclude the paper. It should be noted that in the present English corpus this move was mainly used to strengthen the study, to present a summary of the findings and to conclude, while in the Spanish corpus it was mostly used to show contributions to the field and to highlight present results.

(10) Our study has several strengths including a large, well-characterised clinical sample, standardised assessments, and recruitment from several sites where OCD patients typically receive psychiatric treatment. (ERA 9)

(11) Overall, there is evidence to support the view that seductive details negatively affect learning due to reduced attention, coherence disruption, and inappropriate schema construction. (ERA 5)

(12) This work holds promise for improving our understanding of common variance such as that identified in this study between bulimia and compulsive washing. (ERA 8)

(13) Precisamente, el aporte más significativo de esta investigación quizás reside en haber demostrado que la función simbólica de un mapa es susceptible de ser enseñada a niños tan pequeños, aspecto que no ha sido estudiado previamente. (SRA 13)

(14) Es pertinente resaltar que hasta la fecha no hemos encontrado investigaciones que evaluaran la eficacia y/o utilidad clínica de la TM, constituyendo este estudio el primero en aplicar dicho protocolo a pacientes adultos con TOC. (SRA 17)

Indicating limitations (Move 7) was used by writers to acknowledge the limitations of different aspects of their research. In the present corpora, this move appeared to be “quasi-obligatory” in both languages. The realisation of this move and its most typical linguistic features can be observed in the following examples; it should be noted that, in the present corpus, English writers tend to use straightforward lexical items, while Spanish writers tend to use statements indicating that general or firm conclusions should not be drawn from the study.

(15) There were several limitations in the present study that are worth discussing. First, we did not include a pre-reading or on-line measure of interest; the absence of this

measure weakens the interpretation of post-performance measure of interest as an outcome variable. (ERA 1)

- (16) Sin embargo, si bien el número de casos analizados permite identificar tendencias en el desempeño de los niños, no es posible considerar estas observaciones como concluyentes. (SRA 12)

Recommending (Move 8) is the move in which writers suggest future lines of research in the subject of study (Dudley-Evans, 1994). It may also be used to identify useful areas for further research (Swales & Feak, 1994). The quantitative analysis showed that this move is “quasi-obligatory” in English as well as in Spanish.

- (17) Future studies should control for prompting latency to accurately assess the influence of prompting. (ERA 4)

- (18) En estudios futuros, sería interesante indagar si el insight simbólico así adquirido es susceptible de ser transferido a una tarea simbólica de mayor complejidad, en la que no se brinde instrucción alguna al niño sobre la relación mapa-habitación. (SRA 13)

Indicating implications (Move 9) may be used to summarise the writer’s views on the contributions which the study has made to the field (Nwogu, 1997) or to raise themes and questions for future research. The analysis of the data showed that this move is “quasi-obligatory” in English and “optional” in Spanish.

- (19) An important implication of these findings is that the effects of seductive details may depend on the textual situation in which they occur, and suggests that the three hypotheses we tested could be subsumed under a broader “situational processing” explanation. (ERA 5)

- (20) Por último, es importante considerar las posibles implicancias pedagógicas de la perspectiva planteada. (SRA 12)

Repeated sequences of moves 2 and 3 (*Stating results* and *Referring to previous research*) and of moves 2 and 4 (*Stating results* and *Providing explanations*) were observed in the English corpus. In the Spanish corpus, moves 1 and 2 (*Providing background information* and *Stating results*) seem to constitute a typical recurrent pattern.

In general, the findings show that the moves in the taxonomy appear in the English as well as in the Spanish corpora. It is worth noticing that *Stating results* and *Referring to previous research* are the most frequent moves in both languages, which shows that the main purpose of the discussion section is to highlight present results and to introduce the work of others “for confirmation, comparison or contradistinction” (Swales, 2004: 235) in both languages. Some differences between the corpora also emerge from the analysis: *Providing explanations* and *Indicating research implications* appeared much more frequently in English than in Spanish.

4. DISCUSSION

4.1. Similarities

The results obtained in this study suggest that discussion sections in English and in Spanish research articles in Psychology consist of eight moves, namely: *Providing background information*, *Stating results*, *Referring to previous research*, *Providing explanations*, *Making claims*, *Indicating limitations*, *Indicating research implications* and *Recommending*. Even when most of these moves are present in the corpora, they show variability in their frequency of appearance. In fact, the analysis revealed both a certain degree of homogeneity and a certain degree of variation in the rhetorical structure of the section analysed in the two languages studied.

Two of the moves, *Stating results* and *Referring to previous research*, emerge as “obligatory” in both corpora. This finding is in agreement with other studies. *Stating results* has been presented as “obligatory” (Hopkins & Dudley-Evans, 1988; Dudley-Evans, 1994), “quasi-obligatory” (Swales, 1990; Posteguillo, 1999), or “frequent” (Holmes, 1997) depending on the field of study. Therefore, it appears that in Psychology, as in other disciplines, writers are concerned with providing an account of the data obtained from their studies. This is consistent with Swales’s (2004) and Yang and Allison’s (2003) assertion that the communicative focus of the discussion section is to highlight present results. As noted by Swales (2004), this emphasis on outcomes may be influenced by the APA Publication Manual (6th edition). What is more, in the Argentinean journals used in this study writers are asked to follow the APA standards for publication. Thus, it seems that English and Spanish speaking psychology researchers have a tendency to follow these recommendations “with literal-minded obedience” (Swales, 2004: 238). One may conclude that both, English and Argentinean writers find it necessary to promote their own findings as regards their contribution or relevance to the field.

Referring to previous research is also one of the most frequent moves in both corpora. In this segment, authors relate what they have found in their studies to what has been found in previous studies; that is, writers contextualise their contributions to the research field through comparisons with previous reported results or through reference to previous work in order to support their own results (Holmes, 1997). While English and Argentinean RAs include this move, the data shows a certain degree of variation as regards its communicative purpose. The analysis revealed that, contrary to what English writers appear to do, Argentinean writers seem to take, at times, a critical stance towards the work of others, since they are likely to identify shortcomings in the existent literature when making reference to previous studies. This attitude may be taken as an antagonistic position, as the following example shows:

(21) Si bien las adaptaciones españolas (Elosúa et al., 1996; Gutierrez et al., 1996) han supuesto que la Tarea de Amplitud de Lectura es una tarea válida para evaluar la capacidad general de la memoria de trabajo, los análisis realizados fueron escasos. La adaptación presentada por Elosúa y colaboradores (1996) no presenta análisis psicométricos acerca de su fiabilidad y sólo informa análisis de correlaciones para establecer la validez de dicha tarea (...) (SRA 11)

The quantitative analysis demonstrates that Move 6, *Making claims/Generalising*, is “quasi-obligatory” in English as well as in Spanish. It seems, therefore, that in the Psychology research papers examined, *Generalising* is a strategy authors do not always use. This can probably be attributed to the fact that making generalisations when reporting about human behaviour can act as face-threatening. What is more, Sternberg (2003: 60) cautions psychologists to phrase their conclusions with great care. Hence, recommendations of this sort may have predisposed the writers, whose productions were herein analysed, to limit themselves to just drawing inferences from results instead of emphasising their findings.

Homogeneity between the English and the Spanish texts in the corpora is also noticed in the move *Indicating limitations*, which is “quasi-obligatory” in both corpora. Although there is almost no difference in the frequency of this communicative segment, the numbers suggest that English writers seem to be more likely to acknowledge the limitations of their research. Contrary to this finding, Swales and Feak (1994: 275) consider *Indicating limitations* as “optional but common”. These authors state that “many limitation statements in discussions are not so much about the weaknesses in the research as about what cannot be concluded from the study.” In this study, however, the limitation statements in discussions in English highlight the weaknesses of the research while Spanish speaking writers focus on stating limitations in their own research scope.

Move 8, *Recommending*, is also considered to be “quasi-obligatory” in both corpora. Sternberg (2003: 61) suggests that if conclusions different from the original hypotheses have been drawn, the ways in which those conclusions could be verified in future research should be recommended. It appears that English as well as Argentinean researchers are likely to follow this recommendation when constructing their RAs Discussions.

4.2. Differences

On the other hand, a certain degree of heterogeneity was found between the English and the Spanish discussions as regards the frequency of appearance of Move 1 (*Providing background information*), Move 4 (*Providing explanations*) and Move 9 (*Indicating research implications*).

Providing background information had a high frequency in both corpora; however, it was higher in English than in Spanish. In this text segment, English writers seem to have used a number of sentences specifying, mainly, theoretical

information. Holmes (1997) had already noticed the presence of lengthy background sections in social sciences, which he attributed to the absence of an agreed theoretical framework. While this may be true for psychology as well, it would be worth noticing that this discipline is characterised by the existence of different, and sometimes, opposing schools of thought, varied fields of application and different methods (Morgan, 1959). It is probably this great variety of backgrounds that contributes to the existence of a detailed information move in English. *Providing background information* allows writers to contextualise the study and “indicates that the research derives from a lively tradition of established works in the field” (Nwogu, 1997: 126). Besides, providing readers with information about the study may be a way of facilitating and guiding their reading, which seems to be a more common practice among English writers than among Argentinean writers.

The distribution of Move 4, *Providing explanations*, reveals differences between the corpus in English and the corpus in Spanish. English authors tend to make greater use of this text segment. With this finding, it may be suggested that English writers are more willing to cooperate with their readers than Argentineans, since *Explaining* has a cooperative function. The discrepancy between English and Spanish writers’ use of Move 4 may be accounted for from a pragmatic perspective. The cooperative function is reflected in the maxims for the cooperative principle postulated by Grice (1975) for communication in English. English prose seems to be writer-responsible, in the sense that the writer is required to be explicit and clear so that the audience or the reader is able to understand the writer’s intention and point of argument easily (Loi & Evans, 2010). It would seem, therefore, that English psychology researchers are influenced by this pragmatic principle and reflect this influence in their writings.

As *Exemplifying* is one of the most widely used procedures for one’s statements to be accepted by other peers and especially used to support arguments when explaining (Zamudio & Atorresi, 2000), it was considered appropriate to broaden the scope of the segment *Providing explanations* to mean “exemplify”, as well. This decision is supported by Holmes’s (1997: 325) definition of *Explanation of unsatisfactory result* as a move in which the writer suggests reasons for a surprising result or one different from the results in the literature or gives an example to support his or her explanation.

Indicating research implications is usually the closing move both in English and in Spanish; however, this segment appeared more frequently in English than in Spanish. It seems that English writers are more inclined to suggest what conclusions can be drawn from their results and to offer explanations of what those results may mean in the context of their study than their Argentinean colleagues. The present results suggest that English researchers are more likely to “look at ways in which results might be implemented or lead to applications in the future” (Glasman-Deal, 2010: 177).

The findings discussed above seem to suggest that the “opening” moves show similar behaviour in the two corpora, whereas some of the “middle” and “closing”

moves seem to exhibit some conflict. The discrepancies found between English and Argentinean psychology researchers may be attributed to the relative “youth” of the discipline, especially as regards the practice of publishing in the international and the national arena, if compared to disciplines in the experimental sciences. This should not be considered surprising if we take into consideration the relative newness of the two Argentinean publications that are part of the present corpora: *Interdisciplinaria* was first published in 1980 and *Anuario de Investigaciones de la UBA* in 1989. At this point, it should not be forgotten that Psychology Schools in leading Argentinean universities, such as Buenos Aires, La Plata and Córdoba, were closed during the military dictatorship (1976-1983), which obviously had a negative impact on the distribution and advancement of scientific knowledge. What is more, taking into consideration that a certain period of time is required for a schematic structural pattern to be reproduced (Dudley-Evans & Henderson, 1990 as cited in Posteguillo, 1999), the same can be argued about following the publication manual requirements on being simple, clear and precise. Nevertheless, it should be noted that Argentinean RAs do exhibit a standard rhetorical schema.

Discussions in Psychology RAs in English and in Spanish were found to include patterns of recurrence of clusters of moves (*Stating results* and *Referring to previous research*, and *Stating results* and *Providing explanations* in the English corpus, and *Providing background information* and *Stating results*, in the Spanish corpus). This finding is consistent with previous studies in which this section is described as involving cycles of moves (Basturkmen, 2012; Yang & Allison, 2003; Peacock, 2002; Holmes, 1997; Swales, 1990).

The second goal of this study was to capture the rhetorical structure most frequently followed in the discussion section of Psychology research papers in English and in Spanish. All the above mentioned moves do occur in the corpora analysed; however, it should be noted that they do not occur in a linear fashion, nor do they occur with the same degree of frequency since the results showed quantitative differences between the two languages. Despite the inter-cultural differences mentioned, it may be reasonable to assume that the following sequence conforms to what can be considered a frequent sequence of moves for discussions in psychology RAs in both languages, involving move cycles, which usually combine two of these moves:

1. Providing background information
2. Stating results
3. Referring to previous research
4. Providing explanations
5. Making claims
6. Indicating limitations
7. Indicating research implications
8. Recommending

5. CONCLUSION AND SUGGESTIONS

Whereas the findings of the current study are conclusive, some limitations must be pointed out. Probably, the main limitation is that this research consisted of a relatively small sample. Therefore, the findings should be corroborated with larger corpora in order to be able to make generalisations. In addition, more research is needed on the lexical choices that signal the presence of the different moves in the discussion section. An important next step would be to thoroughly examine these linguistic features.

The rhetorical structure herein proposed should be regarded as tentative. Much remains to be analysed before the whole picture of the discussion section of Psychology research articles in English and in Spanish can be described in detail. Nevertheless, this study may have significant pedagogical implications. The proposed move structure can empower learners, novice researchers and teachers in their practices. First, being aware of the preferred rhetorical moves in different disciplines can facilitate students' reading and writing of scientific research articles. Second, understanding the rhetorical conventions agreed upon in particular academic communities can assist novice researchers find a niche in the international publishing arena. More specifically, the results obtained from this study may provide Argentinean writers with more thorough knowledge about the preferred English rhetorical patterns in order to produce effective prose in English. RAs generic features should therefore be incorporated into academic writing courses for both undergraduate and postgraduate students. Third, move analysis can also develop teachers' awareness of the distribution of information across RAs. This knowledge may enhance the design of ESP course materials since teachers can design tasks to help students capture and disentangle the rhetorical structure of the different canonical sections of RAs.

[Paper submitted 14 Sep 2015]

[Revised version received 19 Nov 2015]

[Revised version accepted for publication 10 Apr 2016]

Acknowledgements

I am grateful to the three raters, Patricia Ribotta, Natalia Dalla Costa and Marina Pasquini, and to my colleagues Natalia Gómez Calvillo and Julia Mariano for their careful reading of the manuscript. I am also grateful to the anonymous reviewers for their generous and insightful comments.

References

- Basturkmen, H. (2012). A genre-based investigation of discussion sections of research articles in Dentistry and disciplinary variation. *Journal of English for Academic Purposes*, 11, 134-144.
- Brett, P. (1994). A genre analysis of the results section of sociology articles. *English for Specific Purposes*, 13, 52-54.
- Crookes, G. (1986). Towards a validated analysis of scientific text. *Applied Linguistics*, 7, 57-70.
- Dudley-Evans, T. (1994). Genre analysis: An approach to text analysis. In M. Coulthard (Ed.), *Advances in written text analysis* (pp. 219-228). London: Routledge.
- Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press.
- Grabe, W., & Kaplan, R. (1996). *Theory and practice of writing*. London: Addison Wesley Longman.
- Grice, H. P. (1975). Logic and conversation. In P. Cole, & J. Morgan (Eds.), *Syntax and Semantics, Volume 3* (pp. 41-58). New York: Academic Press.
- Holmes, R. (1997). Genre analysis and the social sciences: An investigation of the structure of research article discussion sections in three disciplines. *English for Specific Purposes*, 16(4), 324-325.
- Hopkins, A., & Dudley-Evans, T. (1988). A genre-based investigation of the discussion sections in articles and dissertations. *English for Specific Purposes*, 7, 113-122.
- Johns, A. (1997). *Text, role and context: Developing academic literacies*. New York: Cambridge University Press.
- Kanoksilapatham, B. (2005). Rhetorical structure of biochemistry research articles. *English for Specific Purposes*, 24, 269-292.
- Kaplan, R. (1966). Cultural thought patterns in inter cultural education. *Language Learning*, 16(1), 1-20.
- Li, L., & Ge, G. (2009). Genre analysis: Structural and linguistic evolution of the English-medium medical research article (1985-2004). *English for Specific Purposes*, 28, 93-104.
- Lim, J. (2006). Method sections of management research articles: A pedagogically motivated qualitative study. *English for Specific Purposes*, 25, 282-309.
- Loi, C., & Evans, M. (2010). Cultural differences in the organization of research article introductions from the field of educational psychology: English and Chinese. *Journal of Pragmatics*, 42, 2814-2825.
- Martín Martín, P. (2003). A genre analysis of English and Spanish research paper abstracts in experimental social sciences. *English for Specific Purposes*, 22, 25-43.
- Moreno, A. (1997). Genre constraints across languages: Causal metatext in Spanish and English RAs. *English for Specific Purposes*, 3(16), 161-179.
- Morgan, C. (1959). *Introduction to psychology*. New York: McGraw-Hill.
- Mur Dueñas, P. (2007). A cross-cultural analysis of the generic structure of business management research articles: The methods section. *Odisea*, 8, 123-137.
- Nwogu, K. (1997). The medical research paper: Structure and functions. *English for Specific Purposes*, 16(2), 119-138.
- Ozturk, I. (2007). The textual organization of research article introductions in applied linguistic: Variability within a single discipline. *English for Specific Purposes*, 26, 25-38.
- Peacock, M. (2002). Communicative moves in the discussion section of research articles. *System*, 30, 479-497.

- Posteguillo, S. (1999). The schematic structure of computer science research articles. *English for Specific Purposes*, 18(2), 139-160.
- Samraj, B. (2002). Introductions in research articles: Variations across disciplines. *English for Specific Purposes*, 21, 1-17.
- Samraj, B. (2005). An exploration of a genre set: Research article abstracts and introductions in two disciplines. *English for Specific Purposes*, 24, 141-156.
- Soler-Monreal, C., Carbonell-Olivares, M., & Gil-Salom, L. (2011). A contrastive study of the rhetorical organisation of English and Spanish PhD thesis introductions. *English for Specific Purposes*, 30(1), 4-17.
- Sternberg, R. (2003). *The psychologist's companion. A guide to scientific writing for students and researchers*. Cambridge: Cambridge University Press.
- Swales, J. (1990). *Genre analysis. English in academic and research settings*. Cambridge: Cambridge University Press.
- Swales, J. (2004). *Research genres. Explorations and applications*. Cambridge: Cambridge University Press.
- Swales, J., & Feak, C. (1994). *Academic writing for graduate students. Essential tasks and skills*. Ann Arbor: The University of Michigan Press.
- Thompson, D. (1993). Arguing for experimental "facts" in science: A study of research articles results sections in biochemistry. *Written Communication*, 10, 111-112.
- Yang, R., & Allison, D. (2003). Research articles in applied linguistics: Moving from results to conclusions. *English for Specific Purposes*, 22, 365-385.
- Watkins, M., & Pacheco, M. (2000). Interobserver agreement in behavioural research: Importance and calculation. *Journal of Behavioural Education*, 16(4), 205-212.
- Zamudio, B., & Atorresi, A. (2000). *La explicación [Explanatory texts]*. Buenos Aires: Eudeba.

DANIELA MOYETTA holds and M.A. in Applied Linguistics and is a PhD candidate in the same field. She is a teacher assistant in ESP reading courses at the National University of Córdoba. Her main research interests include ESP, genre analysis and text linguistics.

Appendix

Bibliography of the discussion sections analysed

English

- Buhlmann, U., Etkoff, N., & Wilhelm, S. (2008). Facial attractiveness ratings in body dysmorphic disorder and obsessive-compulsive disorder. *Journal of Anxiety Disorders*, 22, 540-547. (ERA6)³
- Dai, D., & Wang, X. (2007). The role of need for cognition and reader beliefs in text comprehension and interest development. *Contemporary Educational Psychology*, 32, 332-347. (ERA1)
- Glenberg, A., Brown, M., & Levin, J. (2007). Enhancing comprehension in small reading groups using a manipulation strategy. *Contemporary Educational Psychology*, 32, 389-399. (ERA2)

³ The numbers given in brackets are used for referencing purposes in order to identify the examples given in this study.

- Hoffman, B., & Spatariu, A. (2008). The influence of self-efficacy and metacognitive prompting on math problem-solving efficacy. *Contemporary Educational Psychology, 33*, 875-893. (ERA4)
- Lehman, S., Schraw, G., McCrudden, M., & Hartley, K. (2007). Processing and recall of seductive details in scientific text. *Contemporary Educational Psychology, 32*, 569-587. (ERA5)
- Mancebo, M., Grant, J., Pinto, A., Eisen, J., & Rasmussen, S. (2009). Substance use disorders in an obsessive compulsive disorder clinical sample. *Journal of Anxiety Disorders, 23*, 429-435. (ERA9)
- Ritchey, K., Schuster, J., & Allen, J. (2008). How the relationship between text and headings influences readers' memory. *Contemporary Educational Psychology, 33*, 859-874. (ERA3)
- Storch, E., Murphy, T., Lack, C., Geffken, G., Jacob, M., & Goodman, W. (2008). Sleep-related problems in pediatric obsessive-compulsive disorder. *Journal of Anxiety Disorders, 22*, 877-885. (ERA7)
- Sutherland, K., & Bryant, R. (2008). Autobiographical memory and self-memory system in posttraumatic stress disorder. *Journal of Anxiety Disorders, 22*, 555-560. (ERA10)
- Wu, K. (2008). Eating disorders and obsessive-compulsive disorder: A dimensional approach to purported relations. *Journal of Anxiety Disorders, 22*, 1412-1420. (ERA8)

Spanish

- Barreyro, J., Burin, D., & Duarte, A. (2009). Capacidad de la memoria de trabajo verbal. Validez y fiabilidad de una tarea de amplitud de lectura. *Interdisciplinaria, 26*(2), 207-228. (SRA11)
- Biglieri, R. (2008). Perfil cognitivo de pacientes con trastorno obsesivo compulsivo: Resultados preliminares. *Anuario de Investigaciones de la UBA, XV*, 43-50. (SRA19)
- Biglieri, R., Maglio, A., & Keegan, E. (2006). Adaptación argentina de la escala de fusión pensamiento acción: Resultados preliminares de su aplicación en pacientes con trastorno obsesivo compulsivo, otros trastornos de ansiedad y población no clínica. *Anuario de Investigaciones de la UBA, XIV*, 23-29. (SRA16)
- Biglieri, R., Vetere, G., & Keegan, E. (2006). Resultados del seguimiento de pacientes con trastorno obsesivo compulsivo tratados con dos variantes de terapia cognitiva. *Anuario de Investigaciones de la UBA, XIV*, 31-40. (SRA17)
- Etchebarne, I., Fernández, M., & Roussos, A. (2008). Un esquema clasificatorio para las intervenciones en terapia interpersonal. *Anuario de Investigaciones de la UBA, XV*, 15-30. (SRA18)
- Góngora, V., Grinhauz, A., & Suárez Hernández, N. (2009). Trastornos de la conducta alimentaria en adolescentes: Un estudio sobre conductas y cogniciones. *Anuario de Investigaciones de la UBA, XVI*, 25-31. (SRA20)
- López Ramón, M. (2006). Relaciones entre aprendizajes implícito y explícito e inteligencia general en alumnos de enseñanza general básica (EGB). *Interdisciplinaria, 23*, 101-118. (SRA14)
- Maita, M., & Peralta, O. (2008). El rol de la instrucción en la comprensión simbólica temprana de mapas. *Interdisciplinaria, 25*, 217-233. (SRA13)
- Oros, L. (2008). Promoviendo la serenidad infantil en el contexto escolar. Experiencias preliminares en una zona de riesgo ambiental. *Interdisciplinaria, 25*, 181-195. (SRA15)
- Sanchez Abchi, V., Diuk, B., Borzone, A., & Ferroni, M. (2009). El desarrollo de la escritura de palabras en español: Interacción entre el conocimiento fonológico y ortográfico. *Interdisciplinaria, 26*, 95-119. (SRA12)