



A Genre-Based Analysis of the Moves and Steps in the Discussion Section of Psychology Research Articles between English Writers and Iranian Writers

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Abstract

Nonnative English speaking (NNES) writers seeking to publish the results of their studies in international English-medium journals may find it challenging because of unfamiliarity with the genre conventions of research articles (RAs). The goal of the present study was twofold: (a) to identify the moves and steps characterizing the discussion section of RAs and (b) to investigate the differences in the use of moves and steps employed by English Writers (EWs) and Iranian Writers (IWs). To these ends, an English Corpus (EC) composed of 50 RAs written by EWs, and an Iranian Corpus (IC), including 50 RAs written by IWs were developed. Drawing on Swales' moves analysis, this genre-based study used corpus data for genre analysis. The data were quantitatively and qualitatively analyzed. A series of one-way chi-square procedures was used to analyze the frequency data quantitatively. For qualitative analysis, corpus data were content analyzed to identify moves and steps. A list of moves and steps, including six moves and 10 steps of the discussion section of RAs was proposed based on the analysis of 100 English RAs representing five core subfields. The results showed statistically significant differences in using one of the moves and several steps between EWs and IWs. Unlike EWs, IWs mostly failed to use all steps to linguistically textualize and manifest the overall function of a particular move. The study concludes with some implications for English for specific purposes (ESP) practitioners.

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INTRODUCTION

The genre-specific investigation of academic text types, particularly research articles (RAs), was developed for the first time by Swales (1990) in support of the EAP students' demands for publishing their research findings in international journals (Chang & Kuo, 2011). Genre analysis deals with the identification of underlying moves and steps constituting RAs. Moves are functional units of the text which can be classified based on their communicative functions (Henry & Roseberry, 2001). Each move can be realized by a series of linguistic choices known as steps (Kanoksilapatham, 2015).

Among different sections of RAs, the discussion section is perceived to be the most difficult for construction (Parkinson, 2011). In this section, writers explain the significance of their research results, compare them to other studies, and justify how their findings contribute to disciplinary knowledge (Basturkmen, 2012). Nevertheless, according to Bitchener and Basturkmen (2006), postgraduate students are not successful in sequencing and developing arguments and using evidence to support them in these sections.

The problem becomes worse in English as-a-Foreign-Language (EFL) settings such as Iran, the context of this study, in which lack of exposure to English makes EAP students more fragile to comprehend and produce English academic texts properly. Indeed, Iranian EAP

students encounter many problems in their academic reading and writing due to their limited lexico-grammatical knowledge and their narrow understanding of the function and underlying structure of academic texts, particularly RAs (Jalilifar & Shahvali, 2013). The Iranian graduate students feel frustrated due to their lower English proficiency and low language ability to structure the different sections of an RA, specifically the discussion section, effectively (Adel & Ghorbani Moghadam, 2015; Amirian, Kassaian, & Tavakoli, 2008).

Although several researchers (Arsyad, 2013; Basturkmen, 2012; Holmes, 1997; Kanoksilapatham, 2012; Kwan & Chan, 2014; Martínez, 2003; Samraj, 2013) have investigated the discussion sections of RAs, the need for more investigation of this section can be felt. Moreover, although a genre-based approach has been used to identify rhetorical structures and linguistic features of articles, or sections of articles, in a range of disciplines, to the best of our knowledge, no study has been undertaken to examine psychology RA discussion sections the comparative genre-based approach. Analysis of the discussion section of psychology RAs for identification of their moves and steps may provide useful findings for improving EAP students' academic writing.

Literature Review

The Notion of a Genre

A genre is a term which embraces a range of orientations and practices (Hyland, 2003). However, it is common practice to recognize three predominant, overlapping schools of genre theory (Hyon, 1996): the New Rhetoric approach, the ESP approach, and the Sydney School.

The New Rhetorician orientation to genres tends to prioritise contextual variables as the potential sources of variation in the rhetorical organization of the texts (Behtary & Davaribina, 2013). While the New Rhetoric studies primarily define genres in terms of their historical context (Bowles, 2012), the Sydney School of genre pays special attention to the social objectives which genres are expected to achieve (Derewianka, 2003). In fact, the Sydney School of genre theory regards genre awareness and knowledge as a source of social power (Belcher, 2004). However, the main focus of the third genre perspective, the ESP approach, is on the formal aspects and rhetorical purposes of written, or spoken genres (Bowles, 2012).

Genre Analysis in ESP

Genre analysis in ESP began with Swales' groundbreaking work (1990) in which he tried to examine academic genres focusing especially on RAs. Two key features of Swales' genre approach can be identified as the use of genre analysis for applied ends and its focus on academic and research English (Bawarshi & Reiff, 2010). In ESP approaches to genre, it is

the communicative purpose that leads to and sets the rationale for a genre and forms its internal construction; moreover, the communicative purpose is clarified in a discourse community's shared objectives. Therefore, it is the communicative-purpose that often serves as a starting point for ESP genre analyses (Bawarshi & Reiff, 2010).

ESP approaches to genre analysis usually begin by identifying a genre within a discourse community and explaining these communicative goals the genre is planned to perform (Swales, 2004). ESP genre approaches emphasize the importance of identifying and comprehending the moves of the academic and professional genres (Hyland, 2003).

Discussion Sections of Ras

Since the Discussion section has been perceived as an essential part in the construction of the RAs and a determining factor of its success or failure in appealing to the discourse community (Kanoksilapatham, 2012), a number of studies (see, for example, Samraj, 2013) have been conducted to examine the rhetorical organization of this literary subgenre. In what follows, we summarize the findings of the studies which have examined the rhetorical patterns of Discussion sections in different disciplines.

Ruiying and Allison (2003) examined the rhetorical structure of the closing sections of the 20 RAs in applied linguistics. Based on their examination, seven moves and a number of steps were identified in the applied linguistics discussion section. Commenting on results was

the most frequent one repeatedly occurring in almost all discussion sections of their study and thus was categorized as an obligatory move. Ruiying and Allison claimed the findings of their study could be used to prepare the academic reading and writing courses for EFL postgraduates.

Drawing on Ruiying and Allison's model of genre analysis, Basturkmen (2009) analyzed the discussion sections of 10 published RAs in Language Teaching Research and another 10 master's dissertations in the field of language teaching. Based on her analysis, although the same schematic structure (moves and steps) was found in the students' writing of dissertations and experts' writing of published RAs, a critical difference between the writing of the students and those of experts concerned the use of alternative explanations. The students tended to report a more significant number of results providing more detail about the findings of their study rather than making claims and moving into generalizations based on them.

More recently, Khany (2017) examined the rhetorical patterns of 80 RAs written in ESP RAs across four Iranian and four international journals across four disciplines. Using Nwogu's (1991) and Kanoksilapatham's (2007) frameworks to analyze the Discussion sections of the four disciplines, Khany found two major differences. The first difference concerned the way "the researchers commented on the findings and revealed their views" (p. 177), and the second difference was "steps identified in the ESP RAs do not overlap evenly the steps provided by Nwogu (1991) and Kanoksilapatham (2007)" (p. 177).

The present study was motivated by pedagogical concerns for designing RAs reading and writing courses and materials preparation to teach EAP students effectively. In particular, the findings of this study may provide an effective pedagogical model which can be applied to EAP classrooms for highlighting widely accepted organization conventions of RAs in psychology. This study, thus, was an attempt to address the following two research questions:

1. *What are the most prevalent moves and steps in the Discussion section of psychology RAs?*
2. *Are there any significant differences between English writers (EWs) and Iranian writers (IW) in their use of moves and steps commonly found in the Discussion section of psychology RAs?*

METHODS

Corpus development

We developed two relatively small corpora, each with 50 English RAs. The two corpora included 100 RAs totaling 852,985 words. However, the native language of the writers was the main distinguishing feature of the two corpora. In other words, one corpus included psychology RAs written in English by IWs whose native language was Persian while the other was composed of English RAs in psychology written by EWs. For convenience, we refer to the former as Iranian Corpus (IC) and the latter as English Corpus (EC) throughout the study. The following sections

aim to elaborate on the procedure for developing EC and IC, respectively.

EC development

First of all, we identified the core subfields of psychology. Consulting several psychology informants and based on the ideas of Freedheim and Weiner (2003), Kardas (2014), and Martín and Pérez (2014), we identified five well-established subfields of psychology. Following this step, to ensure that the results of our analysis would be generalizable to the target discourse community, we identified two leading and prestigious journals in each of those five significant subfields of psychology. Apart from expert opinions (Bruce, 2008; Peacock, 2011), we also took a more objective criterion for the journal selection. Consequently, in an attempt to reduce subjectivity and enhance the representativeness of the corpus, we identified the top two journals in each of the five sub-disciplines of psychology by considering both

the IF reported in the 2014 Journal Citation Reports (JCR) and the 2014 SCImago Journal Rank indicator (SJR).

It is worth mentioning that our journal selection was also guided by the issue of accessibility. Thus, we ignored a number of other journals we did not have access to. The complete list of the journals from which the RAs in the EC were selected is presented in Table 1.

To ensure that our EC would be fairly sizeable, we randomly chose five RAs from each of the 10 journals, resulting in a corpus of 50 RAs. Due to the constantly evolving nature of the RAs (Swales, 1990), we were determined to consider only those RAs which were published within the same year; thus, intending to reflect on the most current writing practices of the psychology research writers in the ever-evolving world of academic research and publishing (Bazerman, 1988), the RAs throughout the publication year of 2015 were the target of our analysis.

Table 1

The Top 10 Psychology Journals Forming the Sources of the RAs in the EC

Sub-disciplines	Journal 1	Journal 2
Clinical Psychology	Behaviour Therapy	Behaviour Research and Therapy
Cognitive Psychology	Cognition	Cognitive Development
Developmental Psychology	Child Development	Journal of Child Psychology and Psychiatry
Educational Psychology	Learning and Instruction	Early Childhood Research Quarterly
Social Psychology	Journal of Experimental Social Psychology	Social Psychological and Personality Science

Given the primary goal of this study—to provide the novice psychology research writers with a detailed description of distinct and separate functions of an independent discussion section of psychology RAs—the inclusion of combined sections for the analysis of this study seems to be quite inappropriate. The RAs should have a stand-alone discussion section. The rationale for such a decision came from Ruiying and Allison's (2003) examination of the closing sections of the applied linguistics RAs. Based on their findings, the Results, Discussion and Conclusion sections of applied linguistics RAs differ with respect to their primary communicative functions. Thus, those RAs with a combined section of Results and Discussion or Discussion and Conclusion were not included.

Using the electronic version of the 10 psychology journals, the procedure for the article selection was as follows: First, from each of the 10 selected journals, we downloaded all the RAs from all the issues of the publication year of 2015. Then, we examined all the RAs by keeping those articles that met all the above specified criteria and excluding the others from our initial corpus. We, then, randomly chose five RAs. Following this procedure, a total of 50 psychology RAs formed the EC of our study.

IC development

We identified the Iranian university-based journals which publish psychology RAs written in English by IWs. Searching the Internet and consulting several Iranian psychology

informants, we understood that the number of local university-based journals publishing English psychology RAs written by Persian native speakers was low, especially in the publication year of 2015. Moreover, in contrast to their high-quality English counterparts, Iranian journals in psychology were not classified according to the different sub-disciplines of psychology. That was actually an unfortunate situation because we eventually identified just five Iranian local journals publishing English psychology RAs which were roughly comparable with the ten journals providing the source of the RAs of the EC. Consequently, the sources of the RAs of the IC of this study came from five journals, only two of which had the RAs within the publication year of 2015, and the last publication year of the remaining three ones was 2014. The complete list of these five journals is provided in Table 2.

Ten RAs were randomly selected from each of the five journals yielding a total of 50 RAs. The selection criteria for the RAs were the same as the EC. The only difference was that the writers of the RAs had to be IWs whose native language was Persian. The only difference was that the writers of the RAs had to be IWs whose native language was Persian. Using the electronic version of the five psychology journals, the procedure for the article selection was as follows: first, we downloaded all the RAs from all the issues of their last year of publication from each of the five selected journals. Then, we examined all the RAs one by one keeping those articles that met all of our specified criteria and excluding the others from our initial corpus. We, then randomly chose ten

RAs. Following this procedure, a total of 50 psychology RAs constituted the IC of our study.

Table 2

The 5 Psychology Journals Forming the Sources of the RAs in the IC

Journal's Name	Journal's Scope	Journal's Last Publication Year	Journal's Publisher
Iranian Journal of Practice in Clinical Psychology	Clinical Psychology	2015	University of Social Welfare and Rehabilitation Sciences, Tehran
International Journal of Psychology	All Areas of Psychology	2015	Iranian Psychological Association, Allameh Tabataba'i University, Tehran
Iranian Journal of Cognition and Education	Cognitive and Educational Psychology	2014	Semnan University
International Journal of Education and Applied Sciences	Social, Educational, Developmental, and Cognitive Psychology	2014	Azarin-mehr Publication, Bojnourd, North Khorasan Province
Iranian Journal of Psychiatry and Behavioral Sciences	All Areas of Psychology	2014	Mazandaran University of Medical Sciences, Sari

After investigating all the RAs from the two issues of this journal and examining them based on our specified criteria, only five out of the 14 RAs met all of the inclusion criteria of this study. Thus, we were also compelled to investigate all of the RAs from all the two issues of this journal's publication year of 2014. After examining all of the 15 RAs of the 2014 publication year of this journal one by one, we

interestingly obtained only five RAs. Consequently, 10 RAs from this journal were analyzed, five published in 2015 and the other five in 2014.

Data analysis

To answer the first research question of this study (What are the most prevalent moves and

steps in the Discussion section of psychology RAs?), frequency of occurrence was used to clearly distinguish between a move and a step, or steps, manifesting that particular move. A move should occur more frequently than does a step. Following Crookes (1986), Holmes (1997), and Peacock (2002), in this study, the unit of analysis was the sentence. In addition, to differentiate one move/step from another, following Swales' (1990) framework for move analysis, the boundaries between moves and their potential steps were established based on their content and linguistic elements.

To recognize the possible status of each move/step of the psychology discussion section, the approach proposed by Kanoksilapatham (2015) was adopted—the frequencies of occurrence of each move and step found in the two corpora were recorded and calculated in percentage. According to Kanoksilapatham (2015), a move/step was classified as obligatory if it was found in 100% of the corpora. To address the second research question of this study (Are there any significant differences between English writers (EWs) and

Iranian writers (IW) in their use of moves and steps commonly found in the Discussion section of psychology RAs?), the frequencies of occurrence of all moves and steps found in each corpus of our study were analyzed and compared, using IBM SPSS (version 25) computer program and applying multiple Chi-square tests, to statistically establish the significant differences of frequency of moves and steps, if any, between the two groups of writers regarding their preference for the application of a particular move/step. The researchers re-analyzed the RAs for moves and steps one month later. Intra-coder reliability, using an Intraclass correlation, turned out to be .96. As for inter-coder reliability, an experienced ELT professor well-versed in ESP read a sample of RAs for moves and steps. This professor read about one-fourth of the sample (25 discussion sections). The inter-coder reliability coefficient, using the intraclass correlation, was .89. These reliability indices were checked against Cohen's (1988) criteria and proved acceptable.

RESULTS

<p>Move 1: Providing Background Knowledge (CON) Step 1: Restating Goals, Questions, Hypotheses, Methodology of the Study (CON) Step 2: Presenting Claims, Research Gaps (OPT)</p> <p>Move 2: Summarizing the Results (OPT)</p> <p>Move 3: Reporting the Results (CON)</p> <p>Move 4: Commenting on the Results (OBL) Step 1: Evaluating the Results (OPT) Step 2: Comparing the Results with the Literature (CON) Step 3: Explaining the Results (CON) Step 4: Interpreting the Results (CON)</p> <p>Move 5: Evaluating the Study (CON) Step 1: Indicating the Strengths of the Study (OPT) Step 2: Indicating the Limitations of the Study (CON)</p> <p>Move 6: Concluding the Study (CON) Step 1: Summarizing the Study (OPT) Step 2: Discussing the Implications of the Study (CON)</p>
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Figure 1. The Moves and Steps of the Discussion Section of Psychology RAs

Note. CON = Conventional, OPT = Optional, OBL = Obligator

Figure 1 shows the rhetorical organization of the discussion section of Ras in psychology.

Interestingly, we noticed the cyclic patterning of Move 3 (Reporting the Results) and Move 4 (Commenting on the Results) in our study. This sequential recurrence of the two moves found in the discussion section of the RAs in the two psychology corpora in the present study is consistent with Basturkmen's (2009, 2012) findings in her Applied Linguistics and Dentistry (2012) research.

The cyclic organization of the moves in the discussion sections of the RAs was also found in the previous studies in other disciplines, including Social Sciences (Holmes, 1997), Biochemistry (Kanoksilapatham, 2005), Engineering (Kanoksilapatham, 2015), and Chemistry (Stoller & Robinson, 2013). In the following sections, we describe each individual move and step of our model for the sake of comprehensibility.

Move1: Providing background knowledge.

This move is regarded as the opening move of the discussion section of psychology RAs which usually occupies the first paragraph of the discussion. This conventional move can be realized through two different steps, as explained below.

Step 1: Restating goals, questions, hypotheses, and methodology of the study.

Using this conventional step, psychology writers try to express the statements about the major goals of the study as well as the methods

and procedures for developing a study. This step, however, may include information regarding the research questions or hypotheses.

The following two extracts show how psychology writers use this step to restate the objectives of their study in the discussion section.

(1) **This research aimed to assess** the influence of consequence value on affect, attention, and learning while participants learned from instructional texts on research methods **and to assess** if text difficulty moderated the effects. [EWs]

(2) **The study's overall purpose was to examine** the relationship between narcissism and aggression in male bodybuilders. [IWs]

Step 2: Presenting claims and research gaps.

Using this optional step, the psychology research writers occasionally tended to open the discussion of the articles by making claims about the contributions and significance of their own study or addressing some research gaps, as shown in the following two Extracts, with Extract 3 discussing the significance of the study and Extract 4 presenting a research gap.

(3) **This paper offers a unique framework for understanding** how learners with SEN can be directly supported, through interaction, in inclusive classrooms. [EWs]

(4) In addition, **there have been virtually no studies in Iran** targeting the two facets of narcissism. The current study aimed to address **this issue** in a sample of Iranian undergraduate and graduate students. [IWs]

Move 2: Summarizing the results. The primary function of this move is to present a number of specific outcomes one after the other. This move, commonly limited to a maximum of four or five sentences, if it occurs, typically follows Move 1 of the discussion section of psychology RAs to sum up the findings of the study, as Extract 5 below shows. In general, Move 2 occurred in 22% of the discussion section of the RAs of the two corpora. Hence, we can classify this move as the only optional move which may characterize the rhetorical organization and communicative function of the discussion section of the psychology RAs. Move 2 in our genre analysis, then, was the least frequent move the writers of the psychology RAs may utilize to accomplish the rhetorical function of the discussion section of the articles. Moreover, we were not able to recognize any constituent steps for this move.

(5) **Three primary findings emerged** from this study. **First**, peer rejection **mediated** the association between children's shyness at preschool age and engagement in first grade. **Second**, we **found** that teacher sensitivity, although not directly related to peer rejection, **was** positively related to engagement. **Third**, teacher sensitivity **moderated** the association between shyness, peer rejection, and engagement. [EWs]

Move 3: Reporting the results. Having an average length of about one or two sentences, this highly conventional move is usually a short move, the primary function of which is to briefly describe a particular finding of the

study. Except for the only obligatory move of this study (Move 4), Move 3 is regarded as the second most frequent move in the discussion section of psychology RAs. However, we could not identify any particular step the writers of RAs might have used to realize the communicative function of this move. The following two Extracts show how psychology writers used this move to report the findings of their study.

(6) Both 10-year-olds and adults usually **judged** the reality status of real, imagined, and novel entities appropriately. [EWs]

(7) **Results showed** a significant difference between experiment and control groups marital satisfaction. [IWs]

Move 4: Commenting on the results. Move 4 occurred in all 100 RA discussion sections. Therefore, it is an obligatory move. When the previous three moves are absent in the discussion section, Move 4, which seems to form the centerpiece of the discussion section of psychology RAs, is employed to begin the discussion. Move 4 may usually include three or more paragraphs; thus, the proper organization and construction of Move 4 in this study need careful consideration. It seems that the process of proper realization of the overall communicative functions of Move 4 usually places a heavy burden on the writers of the psychology RAs. The writers of psychology RAs, in our study, employed four different steps as explained below:

Step 1: Evaluating the Results. This step is mainly utilised to explicitly point out the value

and the significance of a particular finding or a set of findings. In this way, the RA writers attempted to inform the readers about their findings' positive and valuable contributions, as illustrated in the following two Extracts by English and Iranian writers. Step 1 was the only optional strategy and the least frequent technique the psychology research writers may employ to realize Move 4.

(8) **These results contribute to the existing literature by providing evidence** of response monitoring in children, adolescents, and young adults, as well as maturation in these abilities that extend into young adulthood. [EWs]

(9) Therefore, **the findings** that conscientiousness and openness were positively related to intrinsic religious orientation **are unique**. [IWs]

Step 2: Comparing the results with the literature. The primary function of this conventional Step may involve an attempt to consolidate and properly contextualize the findings being reported, as seen in the Extracts below.

(10) **These findings are in keeping with previous research** with elementary school teachers **and expand on the single previous study** with preschool teachers. **Our results also support previous empirical works** suggesting that unsociability is a comparatively benign form of social withdrawal, particularly in early childhood. [EWs]

(11) **Our main results** on the relationship between self-esteem, shame, and overt/covert narcissism **concur with many recent research studies**. **Our finding that** shame is not a

considerable predictor of narcissism **is more aligned with recent findings** in the field of self-conscious emotions. [IWs]

Step 3: Explaining the results. Based on our observation, the psychology research writers seem to have a keen interest in the application of this conventional Step. Interestingly, both EWs and IWs tended to employ a variety of different strategies to linguistically accomplish the goal of providing proper explanations for the results of their own study. Sometimes, the psychology writers tried to account for a certain pattern or phenomenon based on their own reasoning. In most cases, however, they were determined to clarify the reasons for obtaining a result by referring to an explanation provided in the literature. Combining both their own possible accounts for a certain result and the explanations offered by other researchers, the writers of the discussion section of the psychology RAs were often inclined to provide the readers with “alternative explanations for the same result” (Basturkmen, 2009, p. 248). Extract 12 and Extract 13 show us how psychology writers use this step to explain the findings of their study.

(12) **One possibility is that** this effect **may be related to** the distal bias seen for tactile localization on the hand dorsum **recently reported by other research studies**. **Another possibility is that** the crease at the base of each finger on the palm may serve as an attentional attractor, biasing responses. [EWs]

(13) **The positive results** in motor and tactile performance scores for the present study **can be attributed to** receiving long term SIT

by participants and comprehensive therapeutic program. [IW's]

Step 4: Interpreting the results. Very rarely do EWs of the psychology RAs tend to interpret the results of their study by generalising their research findings to a wider population. More frequently, however, the writers in psychology seem to be gravitated towards making claims about the possible interpretation and meaning of a particular result or a set of findings, as shown in Extract 14, in which English psychology writers have used *suggest* and *appear* to comment on the finding of their study.

(14) **Thus**, our findings **suggest that** despite deficits in conscience and empathy, high CU behavior **appears related to** intact cognitive understanding of others' emotions. [EWs]

Move 5: Evaluating the study. This conventional move is utilized both to attach some special significance to the findings and to highlight the main weaknesses of the study. Psychology writers usually use a maximum of four or five paragraphs to firstly indicate the overall strengths of the study and then to point out the main weaknesses of their own research.

Step 1: Indicating the strengths of the study.

Using this optional step, psychology writers tended to strengthen the study being reported through addressing its various contributions, values, advantages, and possible utility. Consider the following Extracts in which both English writers and Iranian writers used this step to address the contributions of the findings of their study.

(15) **One of this study's unique contributions to the literature is that** it combined a number of critical classroom-like qualities while still maintaining a degree of experimental control. [EWs]

(16) **No similar studies** investigating the aim of this study **were found**. Applying self-disclosure training in relation to communication patterns **showed novelty** and exploratory properties of this research by its **significant findings**. [IW's]

Step 2: Indicating the limitations of the study.

With the help of this conventional step, psychology writers, like those of biochemistry (Kanoksilapatham, 2005), were apt to express their opinions about the limitations of the research with respect to the obtained results, the methodology for developing the research, and the claims which were made. In the following two Extracts, EWs and IWs discuss the limitations of their study.

(17) Our **study findings** should be considered **in light of the following limitations**. [EWs]

(18) A **methodological limitation** of the current study **was** that all the **data were correlational** due to the **cross-sectional design of the study**. Another **limitation** of the current study was the **reliance on self-report data**. [IW's]

Move 6: Concluding the study. This move, if it occurs, is regarded as the closing move of the discussion section of psychology RAs. Using this conventional move, psychology writers sought to draw a logical conclusion based on

the multiple findings in their investigation. Move 6 of the present study usually occupies the last three or four paragraphs of the discussion text. Then, this move can be characterized as an elaborate, lengthy move that is linguistically realized through two distinct steps.

Step 1: Summarizing the study. In most cases, this optional step was only composed of three or four sentences, the primary function of which was to highlight the key aspects of the present study, as shown in the following two Extracts.

(19) **In conclusion**, there were **three main outcomes** from this study. [EWs]

(20) **In short**, this study **showed that** alexithymia and coping styles **were** positively correlated with depressive and interpersonal problems in adolescents. [IWs]

Step 2: Discussing the implications of the study. Employing this conventional step, psychology writers attempted to discuss the theoretical, practical, and the research implications of their own study, as revealed by the following Extracts.

(21) In addition to these **theoretical implications**, our findings have potential **practical implications for parents and teachers**. Asking children to gesture about particular numbers **may facilitate** the frequency of the instructional input they receive about those numbers. **Moreover**, observing

these number gestures **may help educators** understand a child's numerical knowledge at a finer-grained level. [EWs]

(22) Accordingly, there are two sets of **theoretical and practical implications** for this study. **In practical level**, we **can enhance the ability of** normal subjects with respect to their emotional experience and **inform them** of the existence of probable maladaptive schemas and attachment styles. **The theoretical implications** of research findings **provide new insights about** the predictors of alexithymia. [IWs]

The second research question sought to examine differences of moves and steps in the discussion section of psychology RAs between EWs and IWs. To address this question of the study, first, the frequencies of occurrence of each move and step in EC and IC were separately recorded and calculated. Then, using IBM SPSS (version 25) and employing multiple Chi-square tests, we compared EWs with IWs with respect to their use of these identified moves and steps. The results are shown in Table 3.

Except for Move 2 (Summarizing the Results), no statistically significant differences were found between EWs and IWs at the move level. Nevertheless, the results of our analysis revealed statistically significant differences at the step level. In other words, it seemed that EWs were likely to employ a number of steps more frequently than did IWs.

Table 3
Frequency and Percent of Moves and Steps in EC and IC

Move/Step	EC (N = 50)		IC (N = 50)		Total	Asymp. Sig.
	Frequency	Percent	Frequency	Percent		
Move 1: Providing Background Knowledge	35/50	70.00	35/50	70.00	70/100	1.000
Step 1: Restating Goals, Questions, Hypotheses, Methodology of the Study	48/50	96.00	37/50	74.00	85/100	.233
Step 2: Presenting Claims, Research Gaps	18/50	36.00	7/50	14.00	25/100	.028
Move 2: Summarizing the Results	20/50	40.00	2/50	4.00	22/100	.001
Move 3: Reporting the Results	48/50	96.00	48/50	96.00	96/100	1.000
Move 4: Commenting on the Results	50/50	100.00	50/50	100.00	100/100	1.000
Step 1: Evaluating the Results	24/50	48.00	3/50	6.00	27/100	.001
Step 2: Comparing the Results with the Literature	46/50	92.00	45/50	90.00	91/100	.917
Step 3: Explaining the Results	34/50	68.00	42/50	90.00	76/100	.359
Step 4: Interpreting the Results	47/50	94.00	45/50	90.00	92/100	.835
Move 5: Evaluating the Study	47/50	94.00	33/50	66.00	80/100	.118
Step 1: Indicating the Strengths of the Study	33/50	66.00	10/50	20.00	43/100	.001
Step 2: Indicating the Limitations of the Study	47/50	94.00	33/50	66.00	80/100	.118
Move 6: Concluding the Study	49/50	98.00	38/50	76.00	87/100	.238
Step 1: Summarizing the Study	28/50	56.00	13/50	26.00	41/100	.019
Step 2: Discussing the Implications of the Study	49/50	98.00	36/50	72.00	85/100	.159

DISCUSSIONS

“Providing Background Knowledge” as the first Move in the Discussion section of psychology RAs confirms the findings of other researchers who found it as the opening move in their studies (Basturkmen, 2009, 2012). Apart from the findings of Khany (2017) and Tessuto (2015), though, none of these researchers identified any steps in the process of realizing Move 1 in the discipline they were investigating.

The results of a one-way Chi-square test did not show any statistically significant variation between EWs and IWs concerning their use of Move 1 when trying to construct the Discussion section. Like engineering research writers (Kanoksilapatham, 2012, 2015), the psychology researchers generally tend to provide their readers with a snapshot of the study when trying to start the Discussion section, so that the readers of the articles are not necessarily required to return to the introduction and the method sections of the RA to gain an understanding of the main features of the study.

Our result regarding the recognition of Move 2 supports the findings of other researchers examining the discussion section of the RAs in different disciplines including Applied Linguistics (Ruiying & Allison, 2003). The appearance of ‘Summarizing the Results’ as Move 2 was remarkably similar to the findings of Basturkmen (2009, 2012). However, ‘Summarizing the Results’ was regarded as Move 3 in the discussion section of the RAs in Ruiying and Allison’s (2003) study.

This may be due to the limited number of the RAs (8 RAs) which were examined in their study.

The finding that IWs used Move 2 less frequently than did EWs can be attributable to the hypothesis (Duszak, 1994) that NNS writers tend to realize the written discourse noticeably using different patterns of organization. In other words, the expectation of the local discourse community and the educational background of writers may have contributed to this rhetorical variation between EWs and IWs. Another possible explanation for such a difference may perhaps be ascribed to the lack of academic education at Iranian universities regarding this specific rhetorical function.

“Reporting the Results” was identified as the third Move in the present study. Basturkmen (2009) also identified a similar move (Reporting a Result) in Applied Linguistics. In writing the Discussion section of the psychology articles, the findings of this study revealed that both EWs and IWs tended to use Move 3 (see Table 3) equally. This finding is consistent with the results of Ruiying and Allison’s (2003) examination of the applied linguistics RAs in which ‘Reporting results’ occurred in all discussion subsections, except for one subsection.

Occurring in 100% of the discussion section of the RAs in each of the EC and the IC of this study, ‘Commenting on the Results’ as Move 4 was the single most prevalent move. At the Step level, applying multiple Chi-square tests, no statistically significant differences were established between EWs and IWs regarding

their preference for utilizing the last three steps of Move 4.

EWs employed Step 1 of Move 4 more frequently than did IWs, and the differences were statistically significantly different. Such differences can be explained using Mauranen's (1993) notion of the potential influence of the L1 written culture of the NNES writers on their L2 text production. Since writing can be regarded as a social activity embedded in the cultural traditions, the lower incidence of the occurrence of Step 1 by IWs in this study may suggest that IWs transferred their L1 patterns into L2. This variation can also be explained using possible reasons provided by Sheldon (2011) including "different target audience and/or perhaps lack of genre knowledge in the medium of English" (p. 242). In other words, "the context of publication and the relationship between the writer and the discourse community" (Martín, 2003, p. 40) can possibly account for this variation between EWs and IWs. Since the discussion section of the RAs written for the international publication has a much wider audience than those constructed for the publication in the national journals, EWs tend to evaluate the specific findings of their research in terms of their contributions and values in an effort to gain acceptance of the international scientific community.

The identification of Move 5 in our examination supports the findings of previous studies examining the discussion section of the RAs in various disciplines. In contrast with the EWs, we found that Move 5 of the RAs written by IWs was often simplified or shortened. Such a difference between the EWs and IWs can be

attributed to the different academic backgrounds the writers have been exposed to. According to Zhang and Hu (2010), the different educational backgrounds and distinct writing norms characterizing the research writers' culture are realized in their academic writing resulting in the different patterns of organization.

The lower frequency of Step 1 of Move 5 in the IC of our study, as suggested by Jalilifar and Shahvali (2013), may also be attributable to the lack of originality and the existence of sufficient past research. Unlike EWs, IWs in the present study mostly tended to adopt the methodology employed by previous researchers to replicate the earlier studies in a different context using a new sample; hence, they may be less confident in "claiming that their reported research forms part of a significant or appealing research area" (Loi & Evans, 2010, p. 2817).

While EWs seemed to spend considerable efforts highlighting the limitations and revealing the weaknesses of their own experiments in great detail, IWs were inclined to briefly discuss the limitations of their research findings. In contrast to EWs providing the readers with a lengthy description of the weaknesses of their research, IWs used a maximum of two or three sentences to describe the limitations. As Sell (1991) neatly put it, "people in different cultures can never feel the same thing exactly" (p. 14). While EWs seemed to feel quite confident about mentioning the limitations of their study in order to suggest further research and allow the potential readership to make judgements about the

outcomes of previous and current research, IWs were probably afraid of damaging the achievement of their research by clearly expressing the limitations of their own studies.

The final Move of our study mirrored that of Stoller and Robinson's (2013) model. Based on the results of Chi-square test, there was no statistically significant variation between EWs and IWs concerning their employment of Move 6 when trying to close the discussion section of the psychology RAs. This finding may imply that both EWs and IWs in this study may have a good command of the rhetorical function of 'Concluding the Study' in the discussion section.

Results from Chi-square tests showed statistically significant differences between EWs and IWs in summarizing the study. Mohan and Lo (1985) held that inadequate knowledge of English for expressing and articulating complex and abstract ideas, unfamiliarity with the cultural components of a topic, a heavier focus on grammar and syntax rather than communicating the meaning, and unfamiliarity with the cultural conventions of expository writing in the target language might hinder better performance of the NNES writers in English. Speculatively, the statistically significant variations between EWs and IWs regarding summing up the study may stem from Iranian writers' unfamiliarity with the cultural conventions of academic research article writing in English. However, this needs to be backed up by further empirical evidence.

Although no statistically significant differences were found between EWs and IWs in discussing the limitations of the study, the

results showed EWs' more frequent uses of how EWs present the limitations of their study may be justified by taking "the size and professional maturity of the target discourse communities" (Bonn & Swales, 2007, p. 105) into consideration. The readership of the 10 top English journals used in creating the English corpus in this study is "considerably larger and considerably more international" (p. 105). Hence, the more overt attempts of EWs to discuss the limitations of their study more frequently can best be aligned with their struggle for proper organization of the Discussion section of the article to appeal to a wider reading audience and academic context.

CONCLUSION

The fact that we were able to distinguish moves and steps in our genre analysis of the discussion section of psychology RAs strongly supports the claim about the preference of a two-level scheme of analysis (Move and Step) over a single-level framework (Move) (Khorramdel & Farnia, 2017; Ruiying & Allison, 2003) to clearly differentiate the general communicative functions from the specific rhetorical strategies which accomplish those communicative functions. The Moves-Steps model in this study also confirms the suggestions for conducting a more robust and practical analysis of the research genres. Simply, analyzing the moves of the written academic texts may not be very revealing. In addition to the move analysis, the genre analysts could also investigate the genre of the RAs at the step and the sub-step levels to obtain more fruitful results.

It seems that providing an in-depth knowledge of the organizational structure and linguistic features of psychology RAs is vital to the explicit teaching of moves and steps to the non-native English psychology research writers. Hence, the EAP instructors should consider it necessary to sensitize NNES writers of the research writing in psychology to the expectations of the international academic research community. To empower NNES writers in psychology to become proficient research readers and writers, the EAP instructors could design relevant teaching materials to raise their consciousness of the conventions of the RAs. In particular, EAP instructors could provide psychology novice writers with opportunities to develop their discipline-specific reading and writing skills, using exercises that familiarize them with both the structures and the language choices in the discussion section of the RAs.

Our model in this study contributes to the earlier reports (Dudley-Evans, 1986; Holmes, 1997; Kanoksilapatham, 2005) that the rhetorical moves of the written academic discourse and their constituent steps in a specific discipline usually tend to occur in a

predictable order. Moreover, the fact that the discussion section of psychology RAs in the present study moves away from the presentation of the specific findings towards the study's broader objectives may be seen as empirical evidence to back up the earlier claims that the organizational sequencing of the RAs' Discussion may reverse the general-to-specific pattern in the Introduction.

This study reported a systematic genre analysis of the Discussion section in the psychology RAs. Future research may examine the psychology RAs in their entirety to better understand the rhetorical functions and linguistic features of all RAs in psychology. Further investigation using the present framework is also needed to verify its wider descriptive adequacy and its pedagogic utility.

The present research was a text-based investigation of the discussion sections of the RAs; it was confined to the analysis of the RAs as genre products; therefore, it is worthwhile to interview the RA authors to verify the analysis and elicit their perceptions regarding the structures they use to organize different subsections of RAs.

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