Intercultural Study of Move Recycling in Discussion Sections of Soft Science Research Articles

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(Received: 2021/1/12; Accepted: 2021/4/12)

Abstract

The present study aimed to investigate whether Reports on the results and Comments on the results moves' recycling in the Research Article (RA) Discussion sections is affected by cultural/disciplinary variations. To this end, 600 empirical RAs in six Soft Science disciplines, including Economics, Sociology, Applied Linguistics, Linguistics, Management, and Psychology, with an equal number in each discipline and culture, published in the period from 2006 to 2018 were selected. Weissberg and Buker's (1990) move model was used as a starting point to analyze the RAs. First, the Reports on the results and Comments on the results moves were identified in the Results sections. The Chi-Square test was then used to calculate and compare the frequency of their recycling in the Discussion sections across cultures and disciplines. The data analysis results revealed that changes in the disciplines or sociocultural settings do not result in variations in recycling the two moves under study. Given that the current study provides a relatively new framework for scrutinizing scientific discourse, it may promise certain pedagogical implications for native and non-native students in Soft Science disciplines, researchers, English for Academic Purposes (EAP) and English for Specific Purposes (ESP) instructors, and course designers.

Keywords: cultural variation, disciplinary variation, discussion section, move recycling, research article

Introduction

Nowadays, scholars, faculty members, and postgraduate students from different disciplines need to disseminate their studies' findings in the research article (RA) form in high-prestigious journals. However, writing English RA is more demanding for non-native authors of RAs than native authors of English (Ahmad, 1997). This may be due to their unawareness of the conventions and schematic structures of English RAs (Yakhontova, 1997).

In this light, move analysis can be regarded as a consciousness-raising endeavor that, according to Swales (1990), provides information about non-native authors' source of weaknesses in RA writing and improves their RA reading and writing abilities. In fact, move analysis was developed in response to Swales' (1981,1990) noble aspirations and hopes to assist novice non-native researchers in spreading their scientific achievements, according to the expected rhetorical structures and conventions of international scholarly journals. A move refers to the rhetorical segments, which perform a specific communicative function within a text (Swales, 2004). To put it another way, move analysis is identifying the schematic units or moves within the text (Nwogu, 1997).

Move analysis was the focus of research in Intercultural Rhetoric (IR) studies to inspect the potential effects of cultural variations (El Malik & Nesi, 2008; Hirano, 2009; Keshavarz, Atai, & Barzegar, 2007; Sheldon, 2019; Yaghoubi & Tarlani, 2012) as well as disciplinary variations (Ge & Yang, 2005; Hyland, 2015; Samraj, 2002; Stoller & Robinson, 2013; Ozturk, 2007) in writing practices. The notion of IR was coined by Connor (2004). Inspired by Holliday's (1999) distinction of big and small cultures, Connor (2004) proposed that national (big) culture overlaps with several small cultures such as academic and disciplinary cultures. Pedagogical purposes are among the most important goals that IR researchers pursue in their cross-cultural studies of texts belonging to various discourse communities (Atkinson, 2012).

One research line in IR favors the view that cultural variations (Behnam & Golpour, 2014; Behnam & Nikoukhesal, 2017; El Malik & Nesi, 2008; Hirano, 2009; Sheldon, 2019; Yaghoubi &Tarlani; Yazdanpanah, Nemati, & Zand-Moghadam, 2021) and/or disciplinary variations (Ge & Yang,

2005; Malmir & Khany, 2019; Moreno, 2003; Samraj, 2002; Soltani, Kuhi, & Hadidi, 2021; Stoller & Robinson, 2013; Peacock, 2011) affect the rhetorical structures of the RAs. However, another research line in IR suggests that certain rhetorical structures are universal and cultural (Chalak & Norouzi, 2013; Hyland, 2009; Rezaee & Sayfouri, 2009; Spack 1997; Widdowson, 1979) and/or disciplinary variations (Becher, 1994; Pennycook, 2008; Widdowson, 1979; Yakhontova, 2006) do not affect such structures. For instance, according to Becher (1994), making a boundary between disciplines is not always straightforward since they may all follow established conventions in wider academic communities.

Whether cultural and disciplinary variations result in variations in the RA schematic structure or not, IR move-based studies are beneficial in raising non-native authors' awareness of their own and target language text conventions (Guest, 2002; Thanasoulas, 2001). Besides, understanding the structure and norms of already published RAs in various disciplines enhances writers' understanding of disciplinary cultures (Malmir & Khany, 2019).

In this regard, one of the well-established yet unwritten conventions of English RA writing is Move Recycling (MR), which refers to considering each appearance of an individual move separately (Swales, 1990). In other words, in move recycling, a single type of move occurs more than once, and every appearance is counted as a distinct occurrence (Biber, Connor, & Upton, 2007). Yang and Allison (2003) believe that move cycling connects RA sections. In turn, this connection makes an RA a cohesive and unified text, suggesting that RA sections are not isolated sections but are linked in a meaningful way. Moreover, the recurrence of moves refreshes readers' memories (Joseph & Lim, 2018) and reminds them of the recycled moves and the main information they carry out. As a result, move cycling may help RA readers have a consistent and straightforward reading without checking for recycled moves.

Given that some established scholars in genre analysis, such as Swales (1990), Flowerdew (1999), Swales and Feak (2004), argue that writing RA Sections is more tedious for both native and non-native researchers, this section was selected to scrutinize moves' cycling. Furthermore, according to

Amnuai (2017), the difficulty in writing Discussions can be related to the fact that this section includes both Reports on the results and Comments on the results moves. Considering the significance of these two moves in the RA Discussions, this study focuses on their recycling in the Soft Science RA Discussions.

The other side of the coin is that novice non-native and even native students may not be acquainted with the concept of MR. Consequently, they may reiterate these moves in the Discussion sections by mere imitation of published RAs without knowing the rationales behind these repetitions. Familiarizing students and researchers with move recursion in the RA Discussion sections may alleviate this problem.

The literature survey reveals that the Result sections include cycles of Reports on the results and Comments on the results moves (Chen & Kuo, 2012; Kanoksilapatham, 2005; Lim, 2010; Thompson, 1993; Williams, 1999; Yang & Allison, 2003). For instance, Yang and Allison (2003) analyzed three final sections of 20 Applied Linguistics RAs, including Results, Discussion, and Conclusion sections. The researchers identified six moves for the Results sections and reported that M2 (Reports on the results) and M4 (Comments on the results) recycled more often than other moves in these sections. In another study, Bruce (2009) investigated 20 Organic Chemistry and Sociology RAs' Results sections. Although some cross-disciplinary variations were observed in the frequency of steps and moves, Reports on the results and Comments on the results moves were frequently reported in the two disciplines Results sections.

Furthermore, a bulk of research has focused on analyzing the generic structure of Discussion sections and reported that Reports on the results and Comments on the results moves are the main moves of the Discussion sections and occur cyclically in this section (e.g., Amnuai, 2017; Amnuai &Wannauruk, 2013; Atai & Falah, 2005; Basturkmen, 2009, 2012; Ershadi & Farnia, 2015; Kanoksilapatham, 2005; Peacock, 2002; Yang & Allison, 2003). For example, in a cross-cultural/cross-disciplinary study, Peacock (2002) used a corpus of 252 RAs' Discussions in seven disciplines, including Public and Social Administration, Law, Biology, Physics, Language and Linguistics, Environmental Science, and Business written by native vs. non-native speakers of English. The findings revealed that the

cyclicity of the moves was variable across cultures and disciplines, that is, move recycling occurred more often in Law, Language, and Linguistics; and considerably less often in Physics and Environmental Science. Besides, non-native speakers tended to recycle the moves more frequently than native English in Physics and Language and Linguistics. In contrast, there was a considerably fewer cycle of moves in Biology, Environmental Science, and Business RAs written by non-native authors.

Likewise, Yang and Allison (2003) reported these two moves' recycling in the Applied Linguistics RA Discussions. They observed that Reports on the results move was present in almost all Discussion sections; thus, they considered this move a quasi-obligatory move. In comparison, Comments on the results move was obligatory due to its incidence in all Discussion sections. In a cross-cultural study, Atai and Falah (2005) investigated the Results and Discussion sections of Applied Linguistics RAs authored by Persian and native English researchers. They found that M2S2 and M2S3 corresponding to Reports on the results and Comments on the results moves in the current study were obligatory moves as they occurred in all RA Discussions.

In another study, Basturkmen (2009) compared the Discussion sections of the two genres, including RAs and Master's theses, in the field of Applied Linguistics and found that the authors of both genres used these two moves cyclically in the Discussions. Amnuai and Wannauruk (2013) analyzed the Discussion sections of Applied Linguistics RAs in Thai and international journals in a cross-cultural study. The researchers found that there are no cross-cultural variations in the frequency of Comments on results move. In a similar vein, Ershadi and Farnia (2015) studied the Discussion sections of Computer RAs authored by Iranian as non-native and native English authors. They discovered that Comments on the result move was the most frequently used move by both groups of authors and considered it a conventional move. The two moves were also observed in 100% of the Discussions in the study conducted by Amnuai (2017) on Accounting RAs; therefore, they were considered obligatory moves in his study.

As the research literature indicates, a burgeoning number of move-based studies have examined the generic structure of RAs. However, as the

examples provided above reveal, most of them have used a small number of RAs, which restricts the results' validity and generalizability. Moreover, in the Iranian context, extensive studies have been carried out through the lens of move analysis (Afshar, Doosti, & Movassagh, 2018; Atai & Falah, 2005; Behnam & Golpour, 2014; Ershadi & Farnia, 2015; Farzannia & Farnia, 2017; Ghasemi & Alavi, 2014; Tavakoli Gheinani & Tabatabaei, 2018; Yaghoubi & Tarlani, 2012); however, they have not focused on MR. Although MR has been documented in a substantial body of research, they have dealt with MR in a single section of the RAs, such as Abstracts (Pho, 2008), Introduction (Afshar et al., 2018; Lim, 2012), Method (Peacock, 2011), Results (Yang & Allison, 2003), and Discussion (Basturkmen, 2012; Ershadi & Farnia, 2015), and have not focused on moves that recycle across the RA sections. More specifically, no IR studies have focused on Reports on the results and Comments on the results moves' recycling in the RA Discussion sections. Therefore, to fill the gaps mentioned above, this study investigates whether the recycling of these two moves in the Discussion sections of six disciplines of Soft Sciences authored by Iranian and native English researchers is affected by cultural and disciplinary variations.

In particular, the present study seeks answers to the following research questions:

RQ 1: Is there any significant difference between native English and Iranian authors in recycling Reports on the results move in the Discussion sections of six soft science disciplines?

RQ 2: Is there any significant difference between native English and Iranian authors in recycling Comments on the results move in the Discussion sections of six soft science disciplines?

Method

Design of the Study

The current descriptive study was based on quantitative data analysis, relying on the frequency count of Reports on the results and Comments on the results moves' recycling in RA Discussions and cross-cultures/disciplinary variations in recycling the two moves.

The Corpus

The corpus of the study was selected from six hundred empirical English RAs, including 300 written by Iranian and 300 written by native English authors with equal numbers in six disciplines of Soft Science (i.e., Economics, Sociology, Applied Linguistics, Linguistics, Management & Psychology) during the period 2006-2018. The reasons for selecting these disciplines were as follows: First, as it was mentioned according to Swales (1990), move recycling occurs in Social Science RAs and among Social Science disciplines, the selected disciplines were not newly developed in the Iranian context; therefore, sufficient RAs written by Iranian scholars might be found to complete the corpus of the study. Second, empirical RAs with separate Results and Discussion sections could be found in the selected disciplines.

Selection of Journals

The criteria for selecting journals were based on their accessibility and reputation among discourse communities. Based on the established tradition of selection and sampling in some other studies, the nomination of informants (e.g., Harwood, 2005; Hyland, 2002), four experienced Iranian professors in each of the disciplines in the current study, were separately asked to nominate four well-known journals in their fields of study. At the first stage, we selected four journals that were common in their recommendations for both Iranian and native English authors in each discipline. However, in some disciplines, such as Sociology, Iranian researchers did not have adequate RAs published in selected journals. In such cases, more journals were used based on informants' advice (see Table 1 for the list of selected journals). While this method appears to challenge the comparisons, according to Moreno (2008), the data were comparable in their main communicative functions.

Table 1

List of Selected Journals for Native English and Iranian Authors

Disciplines	Journals
Applied Linguistics	English for Specific Purposes (ESP), System, Language Teaching Journal, International Journal of Applied Linguistics, The Language Learning Journal
Economics	Energy Economics, Energy Policy, Economic Modeling, Journal of Economic Policy Reform, Economics Letters
Sociology	International Journal of Applied Sociology, Mediterranean Journal of Social Sciences, American Sociological Association, Iranian Journal of Educational Sociology, Cultural Sociology, Social Problems, International Sociology, Canadian Studies in Population, Work, Employment and Society, Punishment and Society, Current Sociology
Management	Information and Management, Business Process Management Journal, The International Journal of Management Education, Management Science Letters, International Journal of Research in Marketing
Psychology	Europe's Journal of Psychology, Current Psychology, Journal of Happiness Studies, Child Psychiatry
Linguistics	Australian Journal of Linguistics, International Journal of Linguistics, Linguistics Journal, Lingua

Model of Analysis

Although this study was a pattern-seeking study, not a pattern-imposing one, Weissberg and Buker's (1990) move model was used as a guide for tracing Reports on the results and Comments on the results moves. The rationales for selecting this model were that (a) Weissberg and Buker focused on 12 disciplines and provided a list of moves that empirical RAs must include. In other words, the model was not developed based on analyzing a single discipline. Therefore, their model can be considered a comprehensive model for move analysis, (b) it was a broader tool for move analysis and was not concerned with sub-moves, and (c) the model is widely used in Iranian EAP writing classes, making it an easy reference for Iranian novice researchers. It is worth mentioning that Weissberg and Buker (1990) did not assign numbers to their identified moves for RA sections. We did this to make it easier for readers to refer to moves.

Weissberg and Buker's (1990) identified Moves for the Results and Discussion Sections of RAs

Result

Move 1: Location of results

Move 2: *Most important findings*

Move 3: *Comments on the findings*

Discussion

Move 4: Original hypothesis

Move 5: *Findings*

Move 6: *Explanation for findings*

Move 7: Limitation

Move 8: Implication of the study

Move 9: Recommendation for future research and practical application

It is worth noting that the current study's Reports on the results and Comments on the results moves correspond to M2 (most important findings) and M3 (Comments on the findings) in Weissberg and Buker's (1990) model.

The following example illustrates how M2 and M3 have been used in the Results sections and recycled in the Discussion section of the Psychology RA by native English authors (Lucre & Corten, 2013):

Results section:

In regard to self − criticism, there was a highly significant reduction in self − hatred ….
Reports on the results

This indicated a reduction in symptoms of emotional distress that many participants …
Coments on the results

Discussion section:

There was a significant reduction in the more pathogenic 'hated self' measure ….
Reports on the results

This seems to indicate that the shift in the level of self − loathing and hatred correlates with …
Coments on the results

Criteria for Article Selection

To increase the validity in the process of RA selection, we considered the following criteria:

First, the RAs that had separate Results and Discussion sections were downloaded from the website. Second, Wood's (2001) criterion was applied to distinguish native English from non-native authors. Based on this criterion, the authors must have native names and be affiliated with an institution in the countries in which English is spoken as the first language. Although this may not be the best method for determining authors' nativity, it is often used. (The best way to ensure the RA writers' nativeness was to contact them via email. Nevertheless, it was impractical in this study due to its use of a large corpus). Whenever RAs were written by authors whose nativeness was difficult to identify based on their names and affiliations or written in collaboration with native English and non-native authors, they were not selected for the study.

Procedure

After downloading RAs from the website and selecting the RAs that made up the study corpus, each discipline's articles were coded to facilitate further access. That is to say, before analyzing the texts, the RAs from each discipline were classified into two groups: those authored by native English and those written by Iranian researchers. Then, the RAs from each group were codified. For instance, EN1- EN50 stands for the articles in Economics written by native English authors, while EI1-EI50 indicates those in the same discipline written by Iranian authors.

The analysis was primarily conducted by the researchers. However, to address the move analysis's subjective nature, another rater with experience in move analysis was invited to independently analyze half of the corpus. The raters explored the Results and Discussion sections of the RAs to identify Reports on the results and Comments on the results moves. Move identification was primarily based on their communicative values. However, linguistic clues and surface signals, such as those identified in the following example extracted from the RA written by the Iranian author (Karimi, 2015) in Applied Linguistics, were used as supplementary devices. In this example, the textual signals have been written in Italics by the researchers:

The major finding of the study is that the combined and individual contributions of...
Reports on results

The interesting *point about this finding is that ...*
Coments on results

After identifying the two moves in the RA Results and Discussion sections, the frequencies of their recycling in the Discussion sections were recorded. Inter-rater reliability was then calculated, resulting in high reliability (r =. 89). Furthermore, the researchers reanalyzed 30% of the corpora after one month, indicating a high degree of reliability (r = .95). The obtained frequencies were normed as occurrences per 10,000 words to make quantitative comparisons possible. The obtained frequencies were entered into SPSS (version 22) and analyzed through Chi-square tests.

Results

Research Question 1

The first research question addressed whether M2 (Reports on the results) recycling in RA Discussions is sensitive to cultural and disciplinary variation. Table 2 illustrates the frequency of M2 recycled by the two groups of authors in the Discussion sections of the study's disciplines.

Table 2
Frequency of M2 (Per 10000 Words) Recycled by Native English and Iranian Authors across Discussions of Six Soft Science Disciplines

		Native	Iranian	Total
	Lin	13	11	24
	AL	11	11	22
	Eco	16	15	31
Disciplines	Man	14	13	27
	Psy	11	9	20
	Soc	14	12	26
	Total	79	71	150

Note. Lin = Linguistics; AL = Applied Linguistics; Eco = Economics; Man = Management;
Psy = Psychology; Soc = Sociology

As Table 2 displays, native English authors recycle M2 more often than their Iranian counterparts in almost all study disciplines. The only exception is Applied Linguistics, in which the frequency of M2 recycling between two groups of authors is equal (f = 11). Careful attention to the total frequency of M2 recycling reveals that Iranian (f = 71) authors tend to recycle move 2 less frequently than native English authors (f = 79). Table 2 also shows some degree of disciplinary variations in M2 recycling so that soft science disciplines based on the frequency of this move recycling can be arranged as follows: Economics (f = 31), Management (f = 27), Sociology (f = 26), Linguistics (f = 24) Applied Linguistics (f = 22), and Psychology (f = 20). A Chi-Square was run to investigate cross-disciplinary and cross-cultural variations in M2 recycling. The results of the Chi-Square test ($\chi2$ (5) = .164, p > .05, Cramer's V = .033) indicate that there is not any significant difference between native and Iranian authors in the frequency of Reports on the results move recycling in the discussions of six disciplines.

Research Question 2

The second research question considered whether there was any significant difference

between native English and Iranian authors in recycling Comments on the results move (M3) in the Discussion sections of six soft science RAs. Table 3 represents the descriptive statistics of M3 recycled by native English and Iranian authors in RAs.

Table 3
 Frequency of Move3 (Per 10000 Words) Recycled by Native English and Iranian Authors across Discussions of Six Soft Science Disciplines

		Native	Iranian	Total
	Lin	12	10	22
	AL	11	11	22
	Eco	12	11	23
Disciplines	Man	13	11	24
	Psy	10	10	20
	Soc	11	10	21
	Total	69	63	132

As Table 3 demonstrates, the majority of the Discussions have overall similar tendencies in M3 recycling. However, as Table 3 illustrates, native English authors recycle M3 (f = 69) more frequently than Iranian authors (f = 63). Moreover, there is a minimal discrepancy across disciplines in M3 recycling. Based on the frequencies displayed in Table 3, the six study disciplines, from high frequency to low frequency, can be organized as follows: Management (f = 24), Economics (f = 23), Linguistics (f = 22), Applied Linguistics (f = 22), Sociology (f = 21), and Psychology (f = 20). A Chi-square test was conducted to investigate whether the difference observed across cultures and disciplines is significant, the results of which indicate that this difference is not significant, χ^2 (5) = .167, p > .05, Cramer's V = .036.

Discussion

The current study sought to investigate whether the recycling of Reports on the results (M2) and Comments on the results (M3) moves in the Discussion sections of six Soft Science disciplines was vulnerable to cultural and disciplinary variations. The obtained results indicate uniformity between two cultures and disciplines in recycling the two moves.

Pondering over the reasons for the cyclicity of M2 and M3 in the Discussions, one can argue that, since these two moves have already been established in the Results Sections (Chen & Kuo, 2012; Kanoksilapatham, 2005; Lim, 2010; Thompson, 1993; Williams, 1999; Yang & Allison, 2003), and at the same time are the foundational moves of the Discussion sections (e.g., Amnuai, 2017; Amnuai &Wannauruk, 2013; Atai & Falah, 2005; Basturkmen, 2009, 2012; Ershadi & Farnia, 2015; Kanoksilapatham, 2005; Peacock, 2002; Swales & Feak, 2012; Weissberg & Buker, 1990; Yang & Allison, 2003), their recycling in the Discussion sections is not surprising and can be expected. It is undeniable that there may be some differences in the rhetorical functions of the two moves in the Discussion and Results sections. That is to say, the Results sections are the major sections for highlighting Reports on the results move with brief comments on them. The situation is reversed in the Discussions, where a summary of findings is provided as a reminder, and then more elaborations and comments on them

are presented. However, the present study sought to explore the reasons for these moves' recycling in the RA Discussions irrespective of their communicative functions.

The high-frequency recycling of M2 and M3 in RA Discussions is consistent with Peacock (2002), who reported M2 in 84% and M3 in 90% of Discussions in seven disciplines. These two moves are also recycled in Weissberg and Buker's (1990) model in the Discussion sections.

The observed similarity between the two cultures is consistent with some previous studies (e.g., Amnuai & Wannauruk, 2013; Atai & Falah, 2005; Ershadi & Farnia, 2015), which did not find any cross-cultural variations in utilizing M2 and M3 in the Discussion sections. However, the results are not consistent with those of Peacock's (2002) who found that non-native authors use move cycling in the RA Discussions more frequently than their native counterparts. In terms of cross-disciplinary similarity, the findings confirm Becher's (1994) assertion that it is not always easy to create a border between disciplines, as they all pursue established conventions in a broader academic community. It seems that move recycling has been an established norm in English RA discussions. It might be suggested that MR has been intertwined with and become an indistinguishable convention of English RA writing in the disciplines of the current study. In other words, the use of MR has been established in these RAs as the key rhetorical resource for achieving a certain functional purpose. The identification of similarities than differences across the two cultures and disciplines can be ascribed to the universality of the rhetorical structure of the RAs (Widdowson, 1979) and the stability of some features of English academic writing (Yakhontova, 2006).

Overall, based on the findings, it was discovered that the disciplinary culture (small culture) and cultural background of RA authors (big culture) do not affect the recycling of M2 and M3. In other words, changes in the disciplines or sociocultural settings do not result in variations in their recycling. This implies that Iranian RA authors are inclined to utilize M2 and M3 recycling as well as their English counterparts. However, without considering a real ethnography of writing practices in the two cultures, these similarities cannot be attributed to the common cultural assumptions about the discoursal value of these two moves' recursion in RA Discussions.

The findings of the current study may promise certain pedagogical implications for English for Academic Purposes (EAP) and English for Specific Purposes (ESP) instructors, researchers, and scholars interested in genre analysis. They can be considered a starting point in explicitly addressing the cyclicity of moves in EAP writing classes. Such awareness may help students build appropriate schemata and have a clear picture of why these two moves are recycled in the RA Discussions. Furthermore, inexperienced non-native students may more confidently write the RA Discussion sections through the deliberate application of move recycling by ensuring that their writing follows the required standards and conventions of English academic writing.

Similar to any other studies, the present research suffers from some limitations which necessitate future studies. Upcoming studies can compile a larger corpus to obtain more conclusive and generalizable results. Many disciplines have remained untouched in this research project, and the results of this study may not be generalizable to them. Future investigations working in the other fields may provide chances for scholars to further concentration on disciplinary conventions. Another issue for consideration is that the present study examined move recycling in the RA genre. This investigation can be extended by inquiring into other genres, such as theses and dissertations. A parallel study can also compare English RAs written by writers of other cultural backgrounds with those written by native English to find convergences or divergences of the results with the present study's outcomes.

Declaration of interest: none

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