The Recycling of Objective Move in English Research Articles' Discussion Sections

[1], [*]Davud Kuhi; [2]Kimia Soltani

[1, 2]Islamic Azad University, Maragheh, Iran
[*]Corresponding author: davudkuhi@yahoo.com

Abstract

While numerous studies have scrutinized the rhetorical structures of Research Articles (RAs) through move analysis, it appears that Move Recycling (MR) across RA sections has received little attention. The current study sought to fill this gap by investigating whether the recycling of Objective move (study purposes/questions/hypotheses) in RA Discussion sections, which was previously used in the Introduction, is vulnerable to disciplinary differences. To achieve the study's objective, 600 English RAs published between 2006 and 2018 in six Soft Science disciplines, with an equal number in each discipline were selected. The move model developed by Weissberg and Buker (1990) served as a road map for analyzing RAs. After identifying the Objective move in RA Introductions, the frequency of its recycling in RA Discussions was calculated and compared across disciplines. The data analysis revealed that disciplinary variations do not result in variations in the recycling of this move in the RA Discussions. It was concluded that the recycling of the Objective move has been established in the sample RA Discussion sections toachieve certain rhetorical functions. The findings may help students, novice researchers, and English for Academic Purposes (EAP) writing instructors understand how Objective move spans in Soft Science RA Discussions.

Keywords: Disciplinary variation, Discussion section, Move recycling, Research article, soft science.

Introduction

According to Hyland (2007), there are certain textual practices and conventions in academic writing, when accomplished properly, can result in successful texts. Acquiring and mastering these conventions has evolved into a continuous and progressive process that novice members need to put into practice in their academic lives. By doing so, established members of various discourse communities, such as journal editors and reviewers, may present green residency cards to these newcomers

who are impatiently waiting in queues to publish their Research Articles (RAs) in prestigious journals.

In this regard, move analysis, which was developed by Swales (1981), can be regarded as a worthwhile endeavor that enables these inexperienced researchers to deduce RA writing conventions (Swales, 1990). A move is defined as the parts or units of a text that carry out specific communicative goals (Swales, 2004). In other words, move analysis identifies the rhetorical units or moves in the text (Nwogu, 1997). Paltridge (2001) claims that move analysis raises students' awareness of different ways of organizing information in writing by discussing distinguishing features of various professional texts.

Indeed, Swales' (1981, 1990) pioneering studies on the move analysis of RA Introductions laid the groundwork for a large number of subsequent studies. One of the research lines in this area is investigating the effect of disciplinary variations on the rhetorical structures of RAs. There are two competing hypotheses regarding the existence of differences in cross-disciplinary writing practices, each with its supporters: the first is that disciplinary differences influence the rhetorical structures used in RAs. The difference among disciplines, in turn, can influence how knowledge is communicated and presented to the audience (Hyland & Bondi, 2006). Many researchers have shown a keen interest in this area of research (Afshar, Doosti, & Movassagh, 2018; Behnam & Nikoukhesal, 2017; Ge &Yang, 2005; Hyland & Bondi, 2006; Kanoksilapatham, 2007, 2015; Moreno, 2003; Samraj, 2002, 2005; Stoller & Robinson, 2013).

A conflicting hypothesis comes from Widdowson (1979), who believes in the homogeneity of textual features of scientific texts across cultures and disciplines. The findings of several cross-disciplinary studies (Becher, 1994; Pennycook, 2008; Yakhontova, 2006) and cross-cultural studies (Amnuai & Wannaruk, 2013; Chalak & Norouzi, 2013; Rezaee & Sayfouri, 2009) support Widdowson's (1979) argument.

Regardless of whether disciplinary differences lead to variations in the RA schematic structure, the significance of cross-disciplinary studies is that understanding the rhetorical structure of previously published RAs in various disciplines is beneficial in raising novice researchers' awareness of RA writing conventions (Malmir, Khany, & Aliakbari, 2019). This knowledge, in turn, enables them to apply these conventions appropriately and contribute to their development as members of their discourse communities (Hyland, 2002). Hence, efforts should be made to identify such conventions that are prevalent in texts of diverse disciplines.

In this light, Move Recycling (MR) is an intriguing but overlooked convention of RA writing that refers to treating each instance of a particular move as a distinct

occurrence. (Swales, 1990). Later, Biber, Connor, & Upton (2007) endorsed Swales' (1990) definition of MR, postulating that MR permits the occurrence of a single move type multiple times, with each appearance counted as a distinct occurrence. In fact, in MR, a text switches from one type of move to another and then back to the first one (Kanoksilapatham, 2007). Therefore, it can be stated that moves are not always used in a linear order, but can also be used cyclically. In other words, rather than proceeding linearly, MR repeats certain moves and revisits various aspects of a study. Simply put, in MR, RA authors maintain the central ideas carried out by moves and then expand, develop, and support them through a new mode of expression, because additional elaboration can contribute to a more in-depth understanding of them.

Interestingly, Swales (1990) contends that due to the length of Social Science RAs, MR is preferable. On the other hand, MR is unlikely to occur in the natural sciences and engineering, where linearity is preferred. Indeed, the writers of these RAs assume a certain level of background knowledge in their readers, resulting in less reliance on MR. Thus, it is clear why sequential patterns of moves are pervasive in such RAs, whereas MR is predominantly used in Social Science RAs.

A thorough examination of existing literature discloses that MR has been reported within a single section of RA, including the Introduction (Lim, 2012; Ozturk, 2007), Method (Lim, 2006; Peacock, 2011), Results (Atai & Falah, 2005; Kanoksilapatham, 2005), and Discussion (Basturkmen, 2009, 2012; Sheldon, 2019). There is no doubt that MR within a single section of RA may highlight the importance of recycled moves; however, we believe that MR across RA sections is more crucial; because, by incorporating MR throughout the RA sections, RA authors endeavor to create a unified text that may aid and facilitate their readers' reading process. To put it differently, MR across RA sections connects them (Yang & Allison, 2003), thereby transforming the entire RA into a coherent text, and the significance of a cohesive text in academic writing is undeniable. In other words, recycled moves are distributed throughout the RA sections to reinforce the connections between them while also activating readers' minds and reminding them of a specific move.

While knowledge of MR across RA sections is required for students' success in RA writing and reading, it is rarely taught in EAP and ESP classes in Iranian universities. Moreover, although students are frequently exposed to MR in RAs, this exposure does not guarantee its proper application in their papers. Because, as Zand-Vakill & Kashani (2012) point out, simple exposure to the RA in one's field does not always result in the ability to learn the RA writing conventions in that field. Inexperienced researchers' unfamiliarity with MR, in turn, may result in haphazard recycling of moves in their RAs. Nevertheless, prospective teachers and researchers, need to

become acquainted with MR as a well-established and indispensable resource of Soft Science RAs.

To address the issues raised above, Soltani, Kuhi, & Hadidi (2021a) conducted a study to raise students' and novice researchers' awareness of how various moves are recycled across RA sections. New insights were gained from this unique study, which paved the way for fruitful future research. In a subsequent intercultural study, for example, Soltani et al. (2021b) concentrated on the recycling of the 'Findings' and 'Comments on the Findings' moves on the RA article Discussion sections and discovered that the recycling of these two moves is unaffected by cultural or disciplinary variations. additionally, Soltani et al. (2021a) noticed that the Objective move (research questions/hypotheses/purposes), which was originally used in the Introduction sections of RAs, was frequently recycled in the RA Discussions. This amazing discovery motivated the researchers to conduct the current study to scrutinizes whether disciplinary differences have an impact on the recycling of Objective move in RA Discussions.

A close review of the existing literature demonstrates that the recycling of Objective move variously called 'Contextualizing the Study' by Kanoksilapatham (2005), 'Focus of the Study' by Sheldon (2019), and 'Background Information' by Joseph and Lim (2018) has been reported by several researchers in the RA Discussion sections (Annesley, 2010; Basturkmen, 2012; Ershadi & Farnia, 2015; Joseph & Lim, 2018; Kanoksilapatham, 2007; 2015; Peacock, 2002; Sheldon, 2019; Swales & Feak, 1994; Tessuto, 2015; Yang & Allison, 2003). For instance, this move was reported by Ershadi and Farnia (2015) as one of the most frequently used moves in the Computer RA Discussions. In another study, Joseph and Lim (2018) conducted a study that examined 60 Discussions in Forestry RAs and discovered that the 'Background Information' move was present in 95% of the Discussion sections. The two primary communicative functions of this move in the RA Discussions, according to Joseph and Lim (2018), were (a) providing the research background, and (b) refreshing the reader's memory. According to them, this move is incorporated into 100% of the Discussion sections in Law (Tessuto, 2015), 95% in Education (Loi et al., 2016), 90% in Biochemistry (Kanoksilapatham, 2015), 71.5% in Biology (Peacock, 2002), and 60 % in Dentistry (Basturkmen, 2012). In a recent cross-cultural, cross-linguistics study Sheldon (2019) investigated the Discussion/Conclusion sections in Applied Linguistics RAs among three groups of authors: Spanish L1, English L1, and English L2. The analysis revealed that the 'Focus of the Study' move, was recycled in 61%, 50%, and 56% of RAs written by Spanish L1, English L1, English L2 authors, respectively.

The studies highlighted above demonstrate that it is possible to trace works related to Objective move recycling in the Discussion section of RAs; however, the majority of the aforementioned studies have examined a limited number of papers in a singlr discipline, (e.g., 60 Forestry RAs by Joseph & Lim, 2018; 54 Applied Linguistics RAs by Sheldon, 2019), restricting the generalizability of the results. Additionally, the recycling of this move was not a primary focus of such studies and was only briefly mentioned as one of the study findings. Moreover, despite the fact that a substantial number of studies using the move analysis lens have been conducted in the Iranian context (e.g., Afshar, et al., 2018; Behnam & Golpour, 2014; Behnam & Nikoukhesal, 2017; Chalak & Norouzi, 2013; Ershadi & Farnia, 2015; Ghasemi & Alavi, 2014; Jalilifar & Dastjerdi, 2009; Keshavarz, Atai, & Barzegar, 2007; Shirani & Chalak, 2016; Tavakoli Gheinani &Tabatabaei, 2018; Yazdanpanah, Nemati, & Zand-Moghadam, 2021), they have dealt with other aspects of move analysis and have not concentrated on MR. To fill the gaps mentioned above, the current study used a relatively large corpus consisting of 600 RAs from a range of different Soft Science disciplines (Psychology, Applied Linguistics, Economics, Management, Linguistics, and Sociology) to investigate whether the recycling of Objective move is disciplinary-dependent. More precisely, the purpose of this study was to address the following research question:

> *What are cross-disciplinary differences in the recycling of Objective move in RA Discussion sections?*

Methodology

Design

In this descriptive study, quantitative data analysis was used to determine the overall frequency of Objective move recycling in the RA Discussions, as well as potential cross-disciplinary variations in recycling this move.

The Corpus

One factor differentiating this study from previous ones is the corpus size, which can be considered sufficiently large to allow reasonable generalization. More precisely, to achieve the objectives of this study, 600 English RAs, from six Soft Science disciplines with equal numbers (i.e., 100 RAs) in each discipline, namely Psychology, Sociology, Economics, Management, Applied Linguistics, and Linguistics published from 2006 to 2018 in four prestigious journals, were selected. The impetus for choosing these disciplines was that MR is prevalent in Soft Science

RAs (Swales, 1990), and in light of previous studies, the disciplines listed above were found to be representative of Soft Sciences. To ensure consistency and generalizability of the results, two empirical English RAs were chosen from each volume of the selected journals over the last thirteen years (RAs were downloaded in late 2018). It is worth mentioning that the authors' cultural background was not considered during the RA selection process.

The Journal Selection Process

Four Iranian lecturers who had published RAs in local and international journals in the disciplines included in the present research were requested to appoint four reputable journals, following the established tradition of sampling in prior studies (Harwood, 2005; Hyland, 2002; Posteguillo, 1999 to name a few). Sixteen journals were nominated, but only four were chosen based on the frequency with which these scholars recommended them (see Table 1 for the selected journals).

Table 1.

List of Selected Journals

Disciplines	Selected Journals
Applied Linguistics	System, ESP, Modern Language Journal (MLJ), Language Teaching
Economics	Energy Policy, Cambridge Journal of Economics, Economic Modeling, Energy Economics
Sociology	American Sociological Review, European Journal of Sociology, Sociological Review, International Journal of Sociology
Management	Journal of International Management, International Journal of Management Reviews, Journal of Management, British Journal of Management
Psychology	British Journal of Social Psychology, British Journal of Clinical Psychology, Europe's Journal of Psychology, Psychology and Psychotherapy,
Linguistics	International Journal of Linguistics, Journal of Linguistics, Australian Journal of Linguistics, Journal of English Linguistics

Model of Analysis

The move mode developed by Weissberg and Buker (1990) was used as a road map to identify the Objective move in RA Introductions and Discussions. This model was chosen for several reasons (a) Weissberg and Buker examined the generic structures of RAs in 12 disciplines and presented a list of moves, or in their own words

"Elements", that a scientific RA may contain; thus, the model could be considered an exhaustive model for move analysis (b) to narrow the scope of the study we needed a broad model that did not deal with sub-moves, and the model could meet this requirement, and (c) it was an accessible resource for Iranian researchers due to its frequent use in EAP writing courses. It should be noted that the identified moves by Weissberg and Buker (1990) have been arranged, and numerical values have been added by the researchers to assist readers in identifying the moves, particularly the Objective move. As can be seen, the Objective move in the current study corresponds to move 4 (the purpose of the study/ research questions) in the Introduction section and move 16 (the original hypothesis) in the Discussion section of Weissberg and Buker's (1990) model.

Weissberg and Buker's (1990) Move Model

Introduction

Move 1: Establish a setting

Move 2: Literature review

Move 3: Gap

Move 4: The purpose of the study/ research questions

Move 5: The statement of the value

Method

Move 6: Design

Move7: Sample

Move 8: Limiting conditions

Move 9: Sampling technique

Move 10: Procedures

Move11: Materials

Move12: Statistical treatment

Results

Move 13: Location of results

Move 14: Most important findings

Move 15: Comments on the results

Discussion

Move 16: Original hypothesis

Move 17: Findings

Move 18: Explanation for findings

Move 19: Limitations

Move 20: Implications

Move 21: Recommendation and practical applications

Procedure

The desired RAs for this study were primarily downloaded from the Internet from the Sci-Hub Website, a free site for downloading RAs. In fact, by pasting RAs' Digital Object Identifier (DOI), the site bypasses any restrictions and publishers' paywalls, allowing free access to academic papers. During the RA selection process they were excluded from consideration if they were (a) not empirical RAs, and (b) not published within the specified time frame (i.e., from 2006 to 2018). The RAs from each discipline were coded for easy reference after they were chosen. For instance, Lin1- Lin 100 stands for articles in the field of Linguistics.

The researchers were primarily responsible for the analysis and identification of Objective move in the selected RAs. However, to reduce subjectivity and ensure the reliability of the results, another rater with move analysis experience and a Ph.D. in Applied Linguistics was employed to conduct move analysis independently on half of the corpora. Before analyzing the RAs, the two raters had a brief session to optimize their agreement. This move was identified primarily based on its communicative value. Textual signals, on the other hand, were used as complementary devices. See the examples below extracted from an Economic RA and a Sociology RA, where the researcher has italicized textual signals.

> Example 1: In this study, we investigate the effects of the oil price shocks on the Canadian economy (Moshiri, & Moghaddam, 2018).

Example 2: This study explores the extent to which ecological theories of crime and interracial conflict explain the distribution of hate crime against blacks and whites (Lyons, 2007).

It should be noted that the term "Objective move" in this study was used to refer to the purpose of the study/research or the research hypotheses, as suggested by some well-known scholars in Applied Linguistics, such as Swales (1990), Peacock (2011), and Joseph and Lim (2018) to name a few.

After identifying the Objective move in the Introduction section of RAs, the frequency with which they were recycled in the Discussion section of RAs was calculated and compared across study disciplines. Then, inter-rater reliability was calculated and found to be quite high (r =.89). Additionally, 30% of the corpora were analyzed after a month interval to ensure intra-rater reliability. The calculated reliability was high (r =0.95).

Since the RAs were unequal in length, following Hyland (2009), the resulting frequencies were normalized as occurrences per 10,000 words and rounded up. SPSS version 22 was applied, and data were analyzed utilizing a Chi-square test.

The following two examples, taken from Applied Linguistics RAs, show how the Objective move is used in the Introductions and then repeated in the Discussions of these RAs.

Example 1 (Rolls & Rodgers, 2017):

Research Questions

In Introduction:

The study addresses the following questions:

- What is the coverage of a list of science-specific word family members in a corpus of science fiction-fantasy texts, compared to that in a corpus of fiction texts and a corpus of science texts?

- How many science word families could feasibly be met given various amounts of extensive reading of SFF, and which amount will likely provide the most 10 exposures to science word families with the least amount of reading (i.e., be the most 'economical')?

- Based on previous vocabulary research, what lexical gains might be expected at the most 'economical' reading level?

In Discussion:

- The first research question asked what the coverage of common science-specific technical word family members is in a corpus of science fiction-fantasy texts, and how this compares to coverage in corpora representing general fiction and academic science.

- The second research question asked how many science word families (types) could feasibly be met given various amounts of extensive reading of SFF, and whether a 'most economical' amount of reading exists.

- The third research question asked what lexical gains might be expected…

Example 2 (Staples, 2015):

Purpose of the Study

In Introduction:

This study aims to identify differences in the lexico-grammatical features used by IENs and USNs in their interactions with patients in order to better inform the training of IENs, other international nurses (nurses whose first language is not English but who are being educated in an English-speaking country), and other internationally educated medical professionals.

In Discussion:

This paper has presented a rhetorical structure for the options analysis identified in business case reports.

Results

The purpose of this study was to determine the extent to which recycling of the Objective move in RA Discussions varies across six Soft Science disciplines. As previously stated, in order to ensure that the Objective move is present in all Introductions of the disciplines under consideration, it was necessary to first determine the Objective move in the Introduction sections of RAs. After identifying this move in the Introductions and ensuring compliance with this requirement, the frequency with which it is recycled in the Discussion sections of the RAs was calculated and rounded up. The obtained frequencies are presented in Table 2.

Table 2

Frequency of Objective Move Recycling in the Discussion Sections of Soft Science RAs (per 10,000 Words)

Disciplines	Lin	AL	Eco	Man	Psycho	Socio	Total
Frequency	61	70	87	74	57	75	424

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

As it is evident in Table 2, there are discrepancies across disciplines of the study in the recycling of this move. In other words, according to the information displayed in Table 2, Soft Science disciplines based on the frequency of the Objective move recycling can be classified as follows: Economics (f = 87), Sociology (f = 75), Management (f = 74), Applied Linguistics (f = 70), Linguistics (f = 61), and Psychology (f = 57). When these frequencies are examined closely, it becomes clear that the Objective move recycling occurs most frequently in Economics RAs and least frequently in Psychology RAs. A Chi-square goodness of fit test was used to determine the significance of the difference in the frequency of Objective move recycling observed in the RA Discussion sections. Table 3 summarizes the results of this test.

Table 3

Chi-square Test for the Differences of Objective Move Recycling in the Discussion Sections of Soft Science RAs

	Df	Valid Cases	Asymp. Sig. (2- sided)
Pearson Chi-Square	5	424	.14

As Table 3 represents, this difference is not statistically significant, $\chi2$ (5, 424) = .14, p >. 05. To put it another way, these results indicate that Soft Science disciplines under study exhibit a similar propensity in recycling Objective move in the Discussion sections of RAs.

Discussion

The present study was an endeavor to investigate whether disciplinary variations affect Objective move recycling in RA Discussion sections. The research results uncovered that, despite the change in disciplines, there are no variations in Objective

move recycling. The observed similarity could indicate that the recycling of this move has become inextricably linked with and indistinguishable from the Discussion sections of RAs in the sample disciplines of the current study. As a result, it could be argued that RA authors are attempting to adhere to this convention of English RA writing in their papers in order to satisfy their audiences, particularly the editors and reviewers of journals.

The resemblance across disciplines lends support to Widdowson's (1979) claim that some RA conventions and rhetorical structures are universal. Additionally, the obtained results corroborate Yakhontova's (2006) argument that certain academic writing conventions within closed national academic conventions have remained stable. The findings also bolster Pennycook's (2008) assertation that considers the internationalization of English academic writing conventions as a crucial factor in their universal application. They are also consistent with Soltani et al. (2021b), who discovered that disciplinary differences do not lead to a substantial difference in MR applications in RA Discussions. The findings of the current study, however, contradict those research findings suggesting that disciplinary variations influence the rhetorical structures of RAs (Afshar et al., 2018; Behnam & Nikoukhesal, 2017; Ge &Yang, 2005; Hyland & Bondi, 2006; Kanoksilapatham, 2007, 2015; Moreno, 2003; Samraj, 2002, 2005; Stoller & Robinson, 2013). Kanoksilapatham (2007) and Stoller and Robinson (2013), for example, emphasized that the textual organization of RAs varies across disciplines.

The other side of the coin, which might be more interesting, is the presence or recycling of Objective move in RA Discussions. When considering the rationale for recycling the Objective move in the RA Discussion sections, one could argue that because the two other sections (Method and Results) create gaps between the Introduction and Discussion, readers may neglect this move. By recycling this move in the Discussion sections, RA authors may attempt to bridge this gap, allowing readers to continue reading in a coherent manner without having to return to the Introduction section to double-check and verify what the Objective move was.

In addition, the writer's use of MR, or more precisely, the recycling of Objective move in the RA Discussions, may be a response to readers' desire for comprehension facilitators as a result of the writer-responsible culture that pervades in English academic writing (Cushing, 2002; Hinds, 1987; Kuhi, 2017). One of these facilitators is MR, which encourages readers to keep reading by enabling them to read consistently and coherently without having to recheck this move (Soltani et al., 2021a). To put it another way, by incorporating MR throughout RA sections, RA authors hope to create a unified text that will help readers read more smoothly and easily.

Previous studies have also documented the prevalence of the Objective move in the RA Discussion sections, which typically appear in the first paragraph of these sections (e.g., Annesley, 2010; Basturkmen, 2012; Ershadi & Farnia, 2015; Joseph & Lim, 2018; Kanoksilapatham, 2007; 2015; Peacock, 2002; Sheldon, 2019; Swales & Feak, 1994; Tessuto, 2015; Weissberg & Buker, 1990; Yang & Allison, 2003).

Conclusion and Pedagogical Implications

The current study was launched to contribute to the move analysis research literature by comparing a specific rhetorical structure of RAs, namely MR, in the Discussion sections of Soft Science RAs. According to the findings, MR exhibited a certain uniformity across sample RAs. This finding led the researcher to conclude that, despite the fact Soft Science disciplines may vary substantially in their move structures (Afshar, et al., 2018; Behnam & Nikoukhesal, 2017; Ge &Yang, 2005; Hyland & Bondi, 2006; Kanoksilapatham, 2007, 2015; Moreno, 2003; Samraj, 2002, 2005; Stoller & Robinson, 2013), they share common demands and epistemological in their orientations to Objective move recycling in RA Discussion sections. It seems that the recycling of this move in RA Discussions has evolved into a long-standing English RA writing convention for accomplishing the aforementioned rhetorical functions.

The findings of the present project may have several implications for ESP and EAP instructors, syllabus designers, students, and researchers. It is believed that familiarity with the rhetorical structure of RAs can improve the reading speed of ESL/EFL speakers (Carrell, 1985). With regards to MR, it can be stated that if readers did not apprehend the Objective move in its initial manifestation in the Introduction section, they may encounter it in the Discussion sections of RAs with different word order. Additionally, because there is a dearth of research devoted solely to MR, the findings of this study can add to the vast ocean of genre studies by providing a relatively new framework for analyzing scientific discourse. Besides, the current study can be used as a springboard for addressing MR explicitly in EAP and ESP writing classes. By paying attention to how frequently a particular move is used across multiple disciplines, novice students can determine whether a particular move is typical or unique to those disciplines. In other words, conscious awareness of the rhetorical function of MR can aid novice researchers in surmounting potential barriers to its application; consequently, this awareness can oil their RA writing process wheels.

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