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Journal Article Highlights in Applied Linguistics: An Exploration into the Rhetorical Moves and their Lexico-grammatical Features

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Abstract

While huge efforts have been devoted to rhetorical moves and the lexico-grammatical features of various sections of academic research articles (RAs) across various disciplines, studies that have focused on RA highlights and their linguistic characterizations are limited. This study involved compiling a corpus of 250 RA highlights sampled from five leading journals in applied linguistics. Guided by qualitative analysis and using *AntConc 3.4.4*, which is a freeware corpus analysis toolkit, 1,116 highlight entries were studied and classified based on their communicative functions. Based on both qualitative and quantitative analysis, a classification of moves in the structure of research article highlights was proposed. Moreover, the metadiscursive devices and promotional elements deployed by authors in applied linguistics were examined using Hyland's (2005) model of stance and engagement as well as Lindeberg's (2004) taxonomies of direct and indirect promotional steps. This study offers insights into the type of entries and the promotional elements used in RA highlights by writers to highlight the value of their research. The pedagogical applications of our findings for academic writing pedagogy are discussed.

Keywords: Highlights, Rhetorical Moves, Promotional Elements, Metadiscourse, Lexico-grammatical Features

1. Introduction

The importance of Research Article (RA) publication in academic settings all over the world is well established in the literature on English for Research Publication Purposes (ERPP) (Flowerdew, 2013; Swales & Feak, 2004). The need to publish the findings of research studies in the competitive academia has become even more critical in the contexts where RA publication is a part of PhD graduation requirement and academic promotions and professional success are assessed in terms of research article publications (Hanauer & Englander, 2011; Lillis & Curry, 2010). Thus, an important issue for scholars is to fulfill the requirements of scholarly writing, an essential skill for academic writers that can be achieved through immersion in the scholarly literature. Familiarity with academic discourse of already published RAs improves writers' understanding of the disciplinary characteristics of the genre and fosters the process of RA writing. This has encouraged researchers in the field of English for Academic Purposes (EAP) to investigate the organizational patterns across different sections of RAs such as abstract (Liardét, Black, & Bardetta, 2019; Pho,2008; Tseng, 2011), introduction (Samraj, 2002), method (Cotos , Huffman & Link, 2017), results (Ruiying & Allison, 2003), discussion (Amnuai & Wannaruk, 2013), and conclusions (Bunton, 2005). While huge efforts have been devoted to rhetorical structure and the linguistic characterization of various sections of research papers, RA highlight is left relatively unnoticed. In the online world, RA highlights offer an advantage for the paper as they allow readers to view the results of a paper without having to read the abstract. Highlights offer noteworthy advantages for readers, writers, and journal editors and have a

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significant role in promoting writers research studies. This study, hence, sought to investigate the organizational structure and the lexico-grammatical features deployed by academic writers in RA highlights in applied linguistics, an area that has been neglected so far and has not undergone investigation.

2. Review of Literature

Highlights are defined as three to five result-oriented points, which provide readers with an at-a-glance overview of the main findings of the article (Elsevier, 2018). According to guideline for journal authors in Elsevier (2018), highlights must have 85 characters or fewer, including spaces. Moreover, they must clearly convey only the results of the study. Authors are advised to save ideas, concepts and methods for the abstract and not to capture every piece of data or conclusion. Well-constructed highlights can be used by readers gain a better understanding of the study and detect the most relevant article from a mass of publications before purchasing the full text article. Moreover, highlights assist writers to construct their arguments, establish their voice, position themselves in their academic community and enhance the visibility of their research article. Furthermore, highlights can help journal editors form an initial impression of the paper and decide whether the article should be sent for a review.

The following is an example of highlights selected from *English for specific purposes* (Green & Lambert, 2019):

- Corpus-based resource for phraseology is developed for secondary school.
- Resource contains discipline-specific pedagogical phrases for eight subjects.
- Phrases are objectively derived but also contain teacher ratings.
- Content word phraseology more discipline-specific than lexical bundle phraseology.
- Limited core academic vocabulary of content word phrases found.

2.1. Studies on RA Highlights

A review of the literature on RA highlights indicates that RA highlight, as a novel genre with a periphery status, has received very little attention by EAP scholars. Perhaps, the study conducted by Yang (2016) is one of very few research studies which have specifically focused on this genre. Using textual analysis, keyword analysis and the analysis of writers' stance and engagement, Yang (2016) investigated disciplinary differences in highlight in the soft disciplines and hard sciences and argued that while there are small variations in highlight preferences, both sciences emphasize on the same sections of the RA, i.e., the results, methods and discussion. In addition, interviewing journal editors and authors, Yang (2016) argues that there are different and even contradictory views on highlights' necessity and actual effect. For instance, journal authors are relatively unsure of the clear purpose of highlights although they agree with its promotional value and associate highlights with the possibility of review or publication. On the other hand, journal editors do not assume that highlights are highly required or associated with journal's excessive submissions. However, both editors and authors believe that highlights need to be grammatically written and report the main findings of the study, while, in actual practice, contrary to the journals guidelines, highlights written by journal authors are sometimes ungrammatical and poorly written including bullets without a verb, bland statements and ill-formed abbreviations (Yang, 2016).

2.2. Promotional Discourse

Writing is a social and communicative engagement between the writer and reader. Writers use written texts not only to inform readers but also to direct their attention to certain aspects of the text and influence their understanding and attitude toward its content. The use of efficient promotional elements, as persuasive rhetorical practice, helps writers increase the anticipated value of their research (Bhatia, 2005). In fact, promotional values are increasingly becoming the dominant characteristic of professional and academic genres and have influenced the nature of most forms of discourse (Bhatia, 2005). Persuasive promotional rhetoric is realized using lexico-grammatical choices and rhetorical strategies which influence readers' perceptions in a way that they assess the research contribution positively (Martín & Pérez, 2014).

Research studies have investigated the use of promotional language across the most promotional parts of scientific research articles (Gillaerts & Van de Velde, 2010; Okamura and Shaw, 2013; Martín & Pérez, 2014), and even across occluded genres such as submission letters for academic publications (Shaw, Kuteeva & Okamura, 2014). The analysis of promotional language in academic discourse involves the analysis of lexico-grammatical features (Harwood, 2005), rhetorical strategies (Hyland, 2000), evaluation (Hunston & Thompson, 2000), and metadiscursive strategies (Hyland, 2005). It has been argued that abstracts exhibit a rather high number of boosters and attitude markers in comparison with research articles because of their promotional function and advertising nature (Gillaerts & Van de Velde, 2010). Similarly, Okamura and Shaw (2013) argued that one strategy used by academic writers to promote their research contribution in RA abstracts is the use of more confident proposition-evaluating verbs such as *show*, *demonstrate*, and *reveal* in comparison with their more modest counterparts such as *suggest*, and *propose*. On the other hand, discussion and methodology sections are likely to include fewer promotional elements as RA writers prefer to present these sections more objectively and be more cautious making general claims (Gillaerts & Van de Velde, 2010). Researchers argue that the use of promotional features in academic discourse is influenced by both cultural and disciplinary conventions (Martín & Pérez, 2014). Furthermore, some fields are, by nature, more competitive that other fields; therefore, they use more marketised and promotional discourse than other fields (Shaw, Kuteeva & Okamura, 2014).

In addition to metadiscursive analysis, the study of promotional discourse involves the analysis of promotional steps and strategies which highlight the value of the study. To this end, focusing on the rhetorical step and moves that could be seen as overtly promotional, Lindeberg (2004) proposed taxonomies of direct and indirect scholarly promotion in abstracts, introductions, and discussion/conclusion sections. Table 1 presents Lindeberg's (2004) taxonomies of direct and indirect promotional steps.

Table 1: Taxonomies of direct and indirect promotional steps (adopted from Lindeberg, 2004)

Direct promotional steps	Indirect promotional steps
Claims of centrality points out the importance, relevance, or topicality of the topic, problem area, or specific problem in academic research or business practice, or the prevalence/magnitude of the phenomenon in business life or society. Statement of knowledge gap may not only build up a powerful foil or niche for prospective contribution but can be used also to indicate the writer's knowledge of the state of the art of the field in focus and thus increase credibility. Boosts of the writer's own contribution are explicit positive evaluations of the material, method, findings, or implications of the findings	Authority refers to a direct appeal for a named authority either from the research field or from the business world or society Economy refers to an appeal to the magnitude or importance of the phenomenon in financial terms, often including numbers. Practitioner refers to an appeal to the usefulness of the research topic for business practitioners Research refers to an appeal for the importance of the research topic for the theoretical advancement of the field. It may be based on the pointing out of a long tradition, an extensive or growing research area, or on a reference to the projected contribution Scope refers to the prevalence or magnitude of the phenomenon in business life, society, or the community Topicality refers to an appeal that includes a marker of the regency, novelty or timeliness of the research topic or phenomenon

Lindeberg's (2004) taxonomies brought out important rhetorical characteristics of scholarly articles extending Swales' (1990) and Dudley-Evans' (1994) models. Lindeberg (2004) argued that strong elements of marketization are prevalent in academic discourse, therefore, learning how to promote

different parts of research articles is an important and necessary skill for both non-native or novice writers who wish to join the academic community.

2.3. Rhetorical Moves and Lexico-grammatical Features

Move analysis is one of the genre-based approaches used to investigate the rhetorical structure of academic RAs. A move is defined as a genre-specific discoursal segment which not only has its specific communicative function but also contributes to the overall communicative purpose and the ultimate rationale of the genre (Swales, 1990). Moves are of different lengths and generally have distinct linguistic boundaries determined by propositional content (Biber, Connor & Upton, 2007). Moreover, a move is used to classify chunks of text in terms of their particular communicative intentions (Yang & Allison, 2003). The identification of discoursal units based on their communicative purpose is one of the strategies used by EAP researchers to draw academic scholars and writers' attention to the underlying rhetorical structure of the text and its linguistic characterization (Amnuai, 2019). Move analysis, as a text analytical method, was first developed by Swales in 1981 based on his genre analytical framework established in 1990. Swale's three-move model for research article's introduction, known as the Create a Research Space (CARS) model, has been widely studied and validated since its publication in 1990. Following Swales' pioneering work, a plethora of research studies has investigated the structural organization of the various sections of RAs in English (Kanoksilapatham, 2005; Samraj, 2002; Yang & Allison, 2004).

The analysis of organizational structures of academic RAs has encouraged EAP researchers to examine the linguistic realization of moves. One of the earliest attempts in this regard was the study conducted by Swales himself in 1981 in which he provided a brief list of words and expressions which were associated with the moves that he had identified in RA introductions. Indeed, following Swales' (1981) analysis, subsequent research studies examined the expressions characterizing rhetorical moves (Chang & Schleppegrell, 2011; Kanoksilapatham,2003) and provided lists of formulaic phrases (Cortes, 2013; Simpson-Vlach & Ellis, 2010) and move-markers (Khany & Malmir, 2019) associated with each move to help novice and nonnative academic writers write their research paper in English. Moreover, the linguistic features of the rhetorical moves have been the focus of much research investigation (Hung, Chen & Tsai, 2012; Staples, 2015; Yeung, 2007).

One of the models widely used for examining the linguistic features of moves is the model of interaction in academic discourse proposed by Hyland (2005) in which he introduced key resources of academic interaction. Hyland (2005) argued that academic writers manage interaction in two main ways: stance and engagement. Stance, which refers to the attitudinal dimension through which writers present themselves, includes hedges, boosters, attitude markers and self-mentions. Engagement, which refers to the alignment dimension in which writers relate to their reader, includes reader pronouns, directives, questions, shared knowledge, and personal asides. Hyland's (2005) model of interaction, which provides a comprehensive account of the means by which interaction is achieved in academic genre and writers and readers construct disciplinary communities, has been the extensively used and validated by research studies in the field of EAP/ESP (Pho, 2008; Hu & Cao, 2011; Hyland, 2008; Tse, 2012).

2.4. The Need for the Study

Over the past few decades, there has been substantial work on the style of scholarly writing. These studies suggests a shift of focus from impersonal and objective style of writing to a more interactive and interpersonal one. In the interactive style, author's presence and evaluations assist writers to make the most use of promotional discourse in academic genres (Donovan, 2004; Gump, 2004; Lindeberg, 2004). Accordingly, new promotional sub-genres such as Research Highlights have been introduced by some major publishers such as Elsevier in response to the growing marketization trends in the public academic genres and the need for more interactive articles in the future (Elsevier, 2012). The observation that scientific articles are evolving into a promotional genre can be explained by the change in promotional culture and emergence of hybrid genres, the competitiveness of academic publishing, and the dependence of academic research studies on external funding.

RA highlights are the showcase to entice readers to the full paper in the struggle of academic research studies to be seen in the crowd of publications. Writing highlights can be a challenging task for journal writers and even editors who reported that they consulted the samples in their target journal before writing their own RA highlights (Yang, 2016). One explanation for authors' difficulty in writing highlights, as argued by Yang (2016), is that highlights are comparatively new features of RAs and journals' author guidelines do little to encourage authors to promote their research through their highlights. Moreover, it is unfortunate that in contrast to the significant role of highlights in supporting the academic stance of the paper, creating credible scholarly image, and promoting the research paper, there is limited knowledge in the literature on how to construct effective RA highlights so that more effective learning and instruction of this novel academic genre is achieved. However, while huge efforts have been devoted to the rhetorical functions and the linguistic characteristics of different sections of research articles (Cortes, 2013; Tankó, 2017), the genre of RA highlight is often neglected and poorly understood. This study, hence, sought to investigate the rhetorical structure of RA highlights and the lexico-grammatical resources deployed by authors to reach their communicative and promotional purposes, an area that has been relatively neglected so far and has not undergone much investigation.

3. Methodology

3.1. Corpus Compilation

The present study is based on a corpus of 250 RA highlights sampled through systematic random sampling from five leading journals in applied linguistics: *Journal of English for Academic Purposes*, *English for Specific Purposes*, *Journal of Second Language Writing*, *System*, and *Linguistics and Education*. These journals were selected from search publications of applied linguistics journals in Elsevier available at https://www.elsevier.com/catalog/arts-and-humanities/language-and-linguistics/applied-linguistics. Since RA highlights are relatively recent development in scholarly publishing, they were not available for RAs published before 2013 in some of the journals selected for the purpose of this study. Therefore, in each journal, 50 highlights of RAs published between 2013 and 2018 were selected and downloaded from electronic databases.

3.2. Analysis of RA Highlights

After the corpus was built, all entries in RA highlights were analyzed manually and information on their linguistic features as well as presence, pattern, cycling and embedding of moves/functions was recorded. Next, all the entries were coded based on their communicative functions and classified into their associated sub-corpora. It must be noted that, for reliability measures, the second researcher coded 50% of randomly selected RA highlights and the percentage of agreement between both researchers was calculated. The comparison showed 92% agreement between the researchers' coding, which was comparatively satisfactory. However, the cases that caused the disagreement were re-analyzed and discussed by both researchers and, eventually, re-classified into the agreed sub-corpora. Eventually, a classification of the function of entries in RA highlight in applied linguistics was proposed (Table 1). Eventually, guided by the insights gained at the first stage of analysis, the researchers analyzed the type of RA highlight entries as well as the metadiscursive devices (Hyland, 2005) and promotional elements and strategies (Lindeberg, 2004) in each sub-corpus using wordlist and concordance functions of *AntConc 3.4.4*, a freeware corpus analysis toolkit.

4. Results and Discussion

4.1. Rhetorical Move Analysis

In this study, 250 RA highlights (1,116 entries) were investigated. The number of entries in RA highlights ranged between three and six entries. Our analysis of the functions of highlight entries indicated that authors in applied linguistics used highlights for a wide variety of communicative functions. Table 2 indicates the classification of highlight entries based on their functions. It must be noted that they are ordered with respect to the frequency of entries in each sub-corpus.

Table 2: Classification of highlight functions

N	Functions	Descriptions	Examples
1	Research Findings (RF)	introduced the outcome of research, and summarized the important issues discussed in the paper	*E.g., The trialogical approach facilitates the design of L2 online academic reading tasks*
2	Research Methodology (RM)	summarized the specific procedures or techniques used to identify, select, process, and analyze research data	*E.g., Half the course hours were allocated to discipline-specific English development*
3	Research Purpose (RP)	summarized the specific topic and goals of the study	*E.g., This study measures the impact of textbook author style on student readers*
4	Research Conclusion (RC)	presented claims drawn from research results and summarized the importance of findings for policy, practice, theory	*E.g., Korean students will overcome sociocultural obstacles when challenged to do so*
		presented recommendations for specific actions to be taken	*E.g., English for Medical Purposes courses should include doctor to doctor communication*
		suggested further research to be conducted	*E.g., Future expansions should address successful L2 writing, genre, and proficiency*
5	Research Scene (RS)	introduced the research territory	*E.g., teaching article writing to graduate students before they do research is challenging*
		reviewed previous literature	*E.g., Study of early U.S. language policy has focused on language tolerance of the era*
		addressed the research gap	*E.g., little research has explored teachers' academic literacy socialization*

Interestingly, it is worth mentioning that researchers found no entries in RA highlights presenting the limitations of the research study. Although, as argued by Lindeberg (2004), the statement of research limitation is an indirect promotional step can show writers' awareness of the generalizability of the contribution and increases research credibility, our analysis of RA highlights indicated that writers avoided stating the shortcomings of their contribution possibly due to their apparently face-threatening and counterproductive nature.

As to the pattern and cycling of these moves, our findings indicated that there was no preferred pattern for the inclusion of moves in RA highlights for authors in applied linguistics. For instance, as shown in Table 1, of the 250 research article investigated, 72 (28.8%) and 25 (10%) RA highlights included four and five entries to summarize research findings and discussions. On the other hand, 151 (60.4%) and 146 (58.4%) RA highlights included no moves to present research methodology or purpose providing evidence that authors in applied linguistics perceived no restrictions about the type or the pattern of moves to be included in RA highlights. Table1 indicates the number of entries devoted to each move in each RA highlight.

Table 3: Number of RA highlights and entries including each communicative function

Number of entries	Functions				
	RF	RM	RP	RC	RS
No entries	7	151	146	215	227
1 entry	10	67	86	31	21
2 entries	69	21	13	3	1
3 entries	67	9	4	1	0
4 entries	72	2	1	0	0
5 entries	25	0	0	0	0
Total number of entries	762	144	128	40	23

As indicated in Table 3, research findings, methodology, and purpose were the top three frequent functions used by authors in RA highlights. Of the 250 investigated highlights, 247 highlights (98.8 %) included at least one entry to convey the findings of the study which indicated that, as advised in the guideline for journal authors in Elsevier (2018), authors in applied linguistics used highlights to present and summarize the main findings of the study. In addition, entries on research methodology were the second most frequent entries (39.6%) used in highlights indicating that authors acknowledged readers' need to know how the research had actually been conducted. These findings were consistent with the result of the study conducted by Yang (2016) who argued that RA highlights emphasize the results, methods and discussion of the research. However, our findings also indicated that authors frequently included entries on the main purpose of the research study as 104 (41.6%) highlights included at least one entry to describe and introduce the main goal of the paper. It must be noted that our analysis indicated that a limited number of entries in our corpus (N=13) were a combination of purpose and methodology (*E.g., this study develops a model of L2 writing quality using structural equation modeling*). In order to consider these entries for further analysis, they were classified in both corpora of research purpose and research methodology. Eventually, of all 1116 entries investigated in our corpus, only 23 entries were classified in this sub-corpus. This finding provides further evidence that writers, reasonably, focus on the new study while writing RA highlights. In other words, they tend to allocate more entries to the the purpose, methodology and the findings of the present study conducted rather than introduce the research scene or review the previous literature related to the study.

4.2. Linguistic Features Analysis

Our analysis of the linguistic features of the 1,002 highlight entries studied in the present study was carried out both based on the researchers' qualitative analysis of the types of highlight entries and Hyland's (2005) model of interaction in academic discourse. In line with previous findings (Yang, 2016), our analysis of the linguistic features of entries in RA highlights indicated that while 1,002 entries (89.78%) out of 1,116 total entries in our corpus were complete sentences. However, we found that 114 entries (10.21%) were not complete sentences and possessed properties that needed further consideration. Table 4 indicates the type of entries found in each sub-corpus.

Table 4: Types of entries found in each sub-corpus

Type of entries	Function of entries					
	RF	RM	RP	RC	RS	Total
Complete sentence	708	124	91	59	20	1002
Absent subjects	23	10	18	0	0	51
Phrase	21	3	16	2	1	43
Absent tense	10	7	0	0	0	17
To-infinitive	0	0	3	0	0	3
Total	762	144	128	61	21	1116

4.2.1. Absent Subjects

Our findings indicated that of 1116 entries in our corpus, 51 entries were characterized with the lack of an overt subject. This was the result of an ellipsis rule deleting the subject from the full sentence. The precise interpretation of such sequences is generally possible with the knowledge of the extra-linguistic context. The empty subject in these entries could be interpreted as the first or third-person singular or plural pronoun. As showed in Table 2, structures with absent subjects were used in entries on result & discussion (*E.g., showed how lecturers prompted students to engage with academia and the professional world in feedback commentaries*), purpose (*E.g., studies College writing instructors' approaches to response to student writing*), and methodology (*E.g., uses quantitative measures to study L2 writing complexity development in short-term ESL course*). The exclusion of subject pronouns, as argued by Hyland (2005), is a clear attempt on the part of the writer to signal writer and reader membership as participants with similar understandings. Consistent with the findings of the study conducted by Labrador, et al., (2014), subject omission in our corpus could also be regarded as a linguistic device through which highlight writers attempted to represent the interpersonal and informal style of language so that they could persuade their potential readers.

4.2.2. Phrases

RA highlights also included entries in the form of phrases. These entries were mainly used to state the research purpose (*E.g., comparison of linguistic clusters of highly rated NS vs. NNS essays*) and results & discussions of the study (*E.g., Gaps between previous experience and expectations in UK generate tensions and conflicts*). Phrases, as one of the most distinguishing characteristics of advertising language, are frequently used in block languages such as headlines. Phrases are not considered grammatically complete sentences, yet they clearly express a complete thought in context. It has been argued that phrases are used significantly more frequently by more proficient academic writers as key features of sophisticated academic writing (Biber & Gray, 2011). Therefore, although the use of phrases in our corpus might be interpreted as writers' attempt to save space due to highlights word limit, it can also be regarded as highlight writers' attempt to condense meaning into more complex linguistic structures as also argued by previous researchers focusing on the use of phrases in academic genres (Parkinson & Musgrave, 2014).

4.2.3. Absent Tense

Another property present in highlights register was the lack of a copula, an auxiliary, or inflection on the lexical verb. Such omissions were the result of medial ellipses as one of the most common type of ellipsis used by headline writers (Biber et al., 1999). As indicated in Table 2, these structures were used in entries on result & discussion (*E.g., Significant main effect found for post-test summary writing assignment*) and methodology (*E.g., Clusters analyzed for discourse functions and mapped onto Move framework*). In line with previous studies (Labrador, 2014), the omission of tense in RA highlights can also be regarded as another strategy used by highlight writers to employ a less formal style of writing.

4.2.4. To-infinitive

Eventually, our analysis of the types of entries in RA highlight indicated that there were very few entries in the form of to-infinitive structures. This structure, as expected, was used to state the purpose of the study (*E.g., to address language re-use and the English as a lingua franca factor*). Although this structure was not used frequently, it provided further evidence that highlight writers felt no limitation in the type of structures while RA highlights.

4.2.5. Word Abbreviations

Of 1,116 entries, 506 entries (45.34%) included word abbreviations such as NS, RA, AWE, and CLA formed by two or more consecutive words. The reason for using abbreviations, which were not explained even at the first use in our corpus, could be explained by writers' attempt to save space. However, abbreviated words are mostly used in internal correspondence and they may create serious comprehension problems to an external audience. Therefore, it can be argued that as abbreviated words are not transparent in terms of their meanings, their use in research article highlights can be an evidence that highlight writers expect their audience to be expert readers in the field. Moreover, abbreviations are in the list of linguistic features to avoid if writers are to achieve formal tone and style (Liardét, et. al., 2019). Thus, it can be concluded that the use of abbreviations in RA highlight suggest that highlights tend be written in less formal tone for readers who are believed to be professional academics in the academic community.

4.2.6. Determiner omission

Another characteristics observed in RA highlights was the omission of determiners such as definite articles (*E.g., the student role was most common, followed by consultant*), indefinite articles (*E.g., spiral curriculum proposed to strategically revisit and integrate basic patterns*), and pronouns (*E.g., the Spanish L1 writers promote work more than the English L2 writers* do). The omission of determiners in RA highlights, which indicated highlight writers' preference for the use of lexical words instead of grammatical words, can also be interpreted as writers' attempt to both adopt a less formal style of writing and save space.

4.2.7. Tense and voice

Our analysis of how entries in each sub-corpus were constructed in terms of verb tense and voice (Table 5) indicated that writers in applied linguistics have certain preferences when writing highlight entries with different functions. For instance, in order to present and summarize the main findings of the study, writers predominantly used simple present tense and active voice. This preference may be an indication of the writers' attempt to present their findings more scientifically, facilitate readers' comprehension, and convince readers that research findings are still true and relevant irrespective of the time that the study was actually conducted. However, this finding was inconsistent with the findings of the study conducted by Tseng (2011) which reported that authors in applied linguistics used past tense more frequently to state the results of the study. Moreover, an issue worthy of note was that we found considerable tense variation in entries dealing with research results, an issue which was also reported by Swales & Feak, (2004).

Furthermore, consistent with previous studies which have examined frequent tense and voice used in research article abstracts in social sciences (Tankó, 2017, Tseng, 2011, Khany & Malmir, 2019; Pho, 2008), our analysis indicated that entries on research methodology were mainly stated through the use of simple past tense and passive voice which can be explained by writers' preference to attempt to depersonalize the information and make their tone more academic and professional when summarizing how the research had been conducted. Eventually, our analysis indicated that in order to set the research scene and summarize the research conclusions and implications, writers in applied linguistics predominantly used present tense and active voice.

Table 5: Tense and voice of entries in research sub-corpus

Move	Tense					Voice			Total
	Simple present	Simple past	Absent tense	Present perfect	Present continuous	Active	Passive	Absent voice	
RF	470 61.67%	254 33.3%	33 4.33%	3 0.39%	2 0.26%	623 81.75%	113 14.82%	26 3.41%	762
RM	44 30.55%	90 62.5%	10 6.94%	0 0%	0 0%	62 43.05%	78 54.16%	4 2.77%	144
RP	72 56.25%	37 28.90%	19 14.84%	0 0%	0 0%	96 75%	16 12.4%	16 12.4%	128
RC	56 91.8%	1 1.63%	4 6.55%	0 0%	0 0%	43 70.49%	14 22.95%	4 6.55%	61
RS	15 71.42%	0 0%	1 4.76%	5 23.80%	0 0%	17 80.95%	3 14.28%	1 4.76%	21

4.2.8. Claims of Centrality

Our analysis of entries on research conclusion indicated that writers used a number of strategies to justify claims of centrality, i.e. highlight the importance of their research topic. These strategies were 1) statement of the potential contribution of investigating the research topic to the broad research area (*E.g., detailed descriptions of nominalization intermediacy may inform EAP writing curricula*), 2) statement of the potential practical advantages of investigating the research topic (E.g., *ESP-CLIL can contribute to professional practice of student teachers*), 3) statement of the possible contribution of investigating the research topic to further understandings (*E.g., analyzing classroom discourse can lead to a more dynamic view of student identity*), and 4) statement of the need for future research on the research topic (*E.g., more research into ELF in international research publication is warranted*). Our findings adds to the findings of the study conducted by Wang and Yang (2015) who indicated that researchers justify claims of centrality through 1) highlighting the importance of research topic, i.e. appeals to salience, 2) indicating the multiplicity of studies conducted on the issue, i.e. appeal to magnitude, 3) relating to the newness of the research topic, i.e. appeal to topicality and 4) foregrounding the challenges that research topic involve, i.e. appeal to problematicity.

4.2.9. Personalization

Personalization, as argued by Lindeberg (2004), indicates the use of promotional discourse which occurs with a shift from passive voice to active voice and the use of personal pronouns through which authors' visibility is realized such as '*I*', '*we*', *our results*'. Our analysis of explicit author reference in entries on research findings indicated that of 762 entries on research findings, only 16 entries highlighted the role of authors in the study using plural first person pronoun we (*E.g., **we** argue that NS perceptions play a key role in communication in ESP settings*). The limited reference to the author's presence while summarizing the findings of the study indicates writers' tendency to downplay their roles in order to suggest that the results of the research study would be the same irrespective of the researchers who conducted it. Similarly, personal pronouns were also infrequently used in entries on research methodology (25 of total 144 entries) probably due to writers' preference to present the method of their analysis in a more scientific way. (*E.g., **we** collected writing samples at the beginning and end of undergraduate study, and interviewed the students at the end of the study*). The infrequent use of personalization in highlight entries focusing on research findings and methodology in our corpus support the findings of previous studies which indicated that there exist differences in the use of personal and impersonal authorial references across discourse functions (Molino, 2010).

Unlike the infrequent use of personal pronouns in entries on research findings and methodology, they were relatively frequently used to describe the purpose of the study. Our findings

indicated that of 112 highlight entries on research purpose, 52 entries (46.42%) included explicit reference to the authors of the study. The use of explicit author reference in entries on research purpose such as *we* (*E.g., **we** conducted a rights analysis of Iranian students and teachers in EAP classes*) and *I* (*E.g., **I** compared stance expression in HG and LG papers in two undergraduate courses*) indicated writers' use of promotional language so that they could highlight their authorial identity and personal role in the study conducted. While these findings are in line with Hyland's (2005) claim that authors from the soft disciplines tend to deploy authorial pronouns more comfortably to represent personal voice, they are inconsistent with the findings of the study conducted by Yang (2016) who reported that personal pronouns are underused in soft disciplines.

4.2.10. Boosters

As explained by Hyland (2005), boosters are metadiscursive devices that allow writers to express their certainty in what they say and to mark involvement with the topic and solidarity with their audience. Our analysis of boosters illustrated that these metadiscursive devices had been mostly used to summarize the findings of the study in comparison with other highlight functions. These boosters were in the form of evaluative adjectives such as *critical, positive*, and *significant* (*E.g., Analysis reveals **key** factors leading to an increase in the use of the regional language*), adverbs such as *significantly, positively*, and *primarily*, (*E.g., Rating scale **largely** captured relevant aspects of students' writing*), and verbs such as *support, improve, and benefit* (*E.g., Synchronous TEF effectively **reinforces** asynchronous TEF*). The use of the most explicit positive evaluations in research findings made this function the most promotional function of research RA highlights which allowed writers to add promotional value to their research through such discoursal resources that differentiated their study. Eventually, our findings also indicated that boosters were also used to describe the research territory and review the previous literature of the study in order to convince readers that the research area was promising and worth investigation. The frequent use of boosting devices to summarize research findings and describe research territory is also supported by previous research findings which argued that boosters appear more frequently in the introduction and discussion section of RAs (Serholt, 2012).

4.2.11. Hedges

Hedges are linguistic devices that indicate the writer's decision to withhold complete commitment to a proposition and reluctance to present or evaluate propositional content categorically (Hyland, 2005). Our findings showed that highlight writers attempted to avoid full commitment to their claims while summarizing research conclusions and claims through hedging devices such as modals of possibility (E.g., *interactional metadiscourse **may** have an impact on assessment of argumentative essays*), adverbs (*E.g., Secondary school textbooks **often** judge historical actors positively*), adjectives (E.g., *a **possible** impact of relationship patterns on learners is an increased critical awareness of academic writing*), verbs (*E.g., Task complexity in writing **tends** to have an impact on CAF measures*), and nouns(*E.g., There is **tendency** towards a trade-off effect between CAF measures*). These findings are consistent with previous studies (Gillaerts & Van de Velde, 2010) which argued that writers are more likely to use hedging devices while making controversial claims which need more negotiation between writer and reader so that they can avoid full commitment to their claims and allow the possibility of alternative voices. However, our analysis of hedging devices also indicated that highlight writers had a tendency to use such mitigating devices while stating the gap of the research study so that they could soften the negative effect of gap statement (*E.g., the rhetorical use of nouns has been **less fully researched** in the research of abstracts*).

5. Conclusion

The present study investigated the rhetorical structure and the lexico-grammatical features of RA highlights in applied linguistics with the aim of pinpointing the metadiscourse strategies typically used by writers in this field. Our results indicated that although highlight writers in applied linguistics tend to focus on the new study, i.e. research findings, methodology and purpose, they do not have any restriction on what to present in RA highlights as there were instances of highlight entries in our corpus on research previous literature, territory, and gap.

The competitive nature of professional and academic activities as well as the perceived need for advertising and promotional activities in academic settings clearly explains writers' appeal for promotional discourse. Our analysis of the linguistic features of RA highlights provided evidence that RA highlight, as a promotional genre share the main features of the grammar of block and advertising language such as absent subject, absent tense, the use of phrases, and determiner omissions. In fact, the use of such linguistic characteristics and stylistic devices in RA highlights are influenced not only by journal constraints such as word limits but also by writers' own estimates and expectations of their readers' subject-matter knowledge and language proficiency. Furthermore, we provided an account of the predominant tense and voice used in RA highlight. Our finding supported the view that the genre of RA highlights can be considered as a representative genre characterized by similar features used by authors in RA abstracts. Eventually, this study investigated the function-specific features of highlight entries and provided a comprehensive account of the linguistic features and rhetorical strategies used by authors to both inform and manipulate their readers.

In general, our analysis of the type of entries in RA highlights and their linguistic characteristics indicated that RA highlights clearly reflect writers' understanding of their readers' state of knowledge including their linguistic proficiency and subject matter knowledge. In fact, RA highlights are characterized with intrinsically context-dependent structures such as absent subjects, absent tenses, absent determiners, phrases, and word abbreviations. The observation of these features in RA highlights demonstrates that highlight writers are aware of their readers' linguistic and subject matter knowledge which is an important feature of successful academic writing. It appears that highlight writers expect their readers to be proficient users of English and belong to the academic community in the field. Otherwise, the use of such features in RA highlights can create comprehension difficulties and structural ambiguities.

The pedagogical applications of the findings for novice and non-native writers must be taken into account. As rightfully argued by previous researchers (Tse, 2012; Yang, 2016), RA highlight, as an attendant genre of research articles, has a significant role in supporting academic stance and promoting the value and contribution of a research study. We examined the lexico-grammatical devices in RA highlights that can expand our understanding of promotion in research articles and provide insights for authors, especially non-native novice authors, who experience difficulties writing appropriate and satisfactory RA highlights. As argued by Yang (2016), academic writers are not often provided with sufficient instruction on RA highlight writing and RA highlights are often written hastily. Therefore, the findings of this study can provide great assistance for those academic writers who wish to write more effective and persuasive RA highlight in order to promote the findings of their study. Furthermore, the findings of this study can be used by ESP practitioners to foster more effective instruction on highlight writing and so that they will be able to meets the international scientific community's expectations.

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