TENSE USE AND MOVE ANALYSIS IN JOURNAL ARTICLE ABSTRACTS

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ABSTRACT

There has long been a growing interest in journal article (JA) abstract writing, and this pervading interest has boosted the exigency for further research. This current study therefore aims to investigate both the various applications of verb tense and the rhetorical structure within JA abstracts. A corpus of 1,000 JAs was collected from four prestigious journals related to applied linguistics at the SSCI level. Quantitative analysis indicates the tendency of tense use for the commonly applied reporting verbs. For example, the ANOVA test shows that the frequency of present tense use is significantly higher (p< .05) in the Journal of Pragmatics abstracts. On the other hand, qualitative analysis shows the prevailing adoption of the three-, four-, and five-move theories of the CARS model, the IMRD structure, and the IPMPrC structure, respectively. The results suggest a distinct occurrence of the IMRD structure over other models. These findings present a more systematic pattern within JA abstracts and also show the potential for enlightening further pedagogy-oriented writing instruction for JA abstracts.

Key Words: tense, move, rhetorical structure, abstracts, IMRD

INTRODUCTION

The research of journal article (JA) abstracts has long been of interest in academic writing (e.g., Hyland, 2004; Pho, 2008). Previous studies have highlighted the importance of JA abstracts in the contemporary flow. Their pivotal role has received considerable attention from the international community. For example, Swales (1990) appeals to academia for research on JA abstracts not to be ignored due to their significance for genre investigation and disciplinary discourse communities.

As the knowledge of the available language choices and rhetorical structures has a great influence on one's proficiency in academic written, many investigators have recently turned to research in the area of genre analysis, thematic organization, formulaic language, rhetorical structure, and the like, in order to allow learners of academic writing to make more informed decisions in their own writing (e.g., Cortes, 2004; Hyland, 2008; Lorés, 2004; Martín, 2002; Swales, 1990; Tu, 2013; Wang & Chan, 2011; Wang & Kao, 2012). Furthermore, research in corpora decoding for rhetorical structures such as moves and steps is also regarded as one of the recommendations for further research expansion by Flowerdew (2010).

Based on the contribution of previous studies (e.g., Hyland, 2008; Swales, 1990; Tu & Wang, 2013), the current research builds a JA corpus to explore the variation of tense usage within the domain of verbs, mainly the be-verb and reporting verbs, among the transitions of moves through the structural analysis of JA abstracts.

LITERATURE REVIEW

It is commonly accepted that the be-verb and reporting verbs occur more frequently in journal article abstracts (Hyland, 1999; Swales & Feak, 2012). This is the main reason why both are significant in the research of tense usage (for details, see Results).

Reporting Verbs and Tense

In academic writing, a writer is required to comment on others' work, agree or disagree with others' studies, and evaluate others' ideas. Reporting verbs are grammatical devices that writers require to state their own stance in academic writing (Hyland, 1998). A reporting verb is also a specific verb used to report on other people's work (Bloch, 2010).

According to Hyland (1999), there are more than 400 reporting verbs. Among them, almost 50 percent are used only once in his academic writing corpus of 80 research articles consisting of over 500,000 words, including 13 different domains divided into the harder and softer sciences. In his findings, the most frequent forms used in the genre of applied linguistics include *suggest*, *argue*, *show*, *explain*, *find*, and *point out*, which are verbs explored in the current study.

Additionally, Swales and Feak (2012, p. 287) argue that tense usage is varied and depends largely on different sub-genres of JA as

summarized in Table 1.

Table 1

Frequencies of Verb Tense (adapted from Swales & Feak, 2012, p. 287)

Type\section	Introduction	Methods	Results	Discussion
Present tense	high	low	low	high
Past tense	mid	high	high	mid
Present perfect	mid	low	low	mid
Passive	low	high	variable	variable

It is evident that there are different tendencies of tense usage in the different sub-genres of an academic article due to their specific functions. For example, the present tense appears more often in the sections of Introduction and Discussion, but less frequently in the section of Methods and Discussion which is generally written in the past tense. This demonstrates that it can be argued if someone insists that a tense appears regularly in the same section. However, Table 1 fails to explain the differentiation of "high-mid-low" and their *variable* frequency because statistically, the scope of the 3-point scale tends to cause a bigger gap among different levels of frequency of occurrences.

Move Theories

Move analysis has long been considered one of the most influential fundamentals in genre analysis. A move is a rhetorical element which serves the function of correlating and providing coherence within the written or spoken context (Lorés, 2004; Swales, 2004). However, it is not a definite unit which is limited to being performed in a fixed pattern because it is able to vary along with the context. In other words, move functions as a communicative role between each transition of the rhetorical structure. A brief elaboration of the most common move theories in terms of three-, four-, and five- moves is presented in sequence below.

Three-move theory

Swales (1990) proposed the *Create a Research Space* (CARS) model which has been widely used by scholars as a basis for structuring their academic writing (Cheng, 2006). The CARS model is divided into the

three moves of establishing a territory, establishing a niche, and occupying the niche (Swales, 1990). In other words, Move 1 establishes a territory that can be commensurate with "goal" and "current capacity," synthesizing the research aim within the previous research (Swales, 1990, p. 142). As a consequence, Move 2 establishes a niche functioning as offering a space for the research gap and possible research questions (Swales, 1990). In this circumstance, Move 3 occupies the niche, providing a "solution of criteria of evaluation" that taps into the intricacies which arise in the Move 2 section (Swales, 1990, p. 142).

Likewise, Pho (2008) also proposes a three-move theory to analyze texts: Move 1 presents the research. Move 2 describes the methodology. Move 3 summarizes the results. The current study uses the CARS model (Swales, 1990) for 3-move analysis, as it is more concise and widely used, although it is not perfect in terms of text analysis (Bunton, 2002; Swales, 2004).

Four-move theory

It is commonly recognized that a 4-move abstract is more frequently used in academic writing. Bhatia (1993) proposed a four-move theory, i.e., introducing purpose, describing methodology, summarizing results, and presenting conclusions. Ventola (1994) argued that the most well-known model in academic writing is the IMRD structure, i.e., Introduction, Methods, Results, and Discussion (see also Golebiowski, 2009).

To illustrate the content in depth, the introduction segment would cover the further elaborations of the purpose and objective of the current research. Lorés (2004) additionally comments that any other questions that could possibly bring out further open discussion might also be included in this Introduction segment. When it comes to Method, a clarification of the scheme adopted in the research will be described (Lorés, 2004).

The Result section is then expected to offer critical information in relation to the findings from the implementation of the research (Lorés, 2004). The final Discussion section is required to provide a further discussion of the findings, an exploration of the possible research space and practical application (Lorés, 2004).

Five-move theory

To make up the incomplete structure of the four-move theory, Santos (1996) presents a five-move theory, including "situating the research, presenting the research, describing the methodology, summarizing the results, and discussing the research."

However, Hyland (2004) proposes the *IPMPrC* model, another five-move theory, to analyze texts, which differs from the above discussed structures. This five-move theory is especially designed to access RA abstracts. It is clarified in the first place that the aim of setting this five-move structure lies in providing an assertion in relation to JA abstracts as well as an inter-textual projection in terms of the significance of each study, rather than addressing definite move steps (Hyland, 2004).

Table 2 elaborates the primary functions of each move in the five-move theory to provide a clearer framework of the main characteristics of the IPMPrC structure (Hyland, 2004, p. 67).

Table 2

IPMPrC Structure

Move	Function
Introduction	Establishes the context of the paper and motivates the study or discussion.
Purpose	Indicates purpose, thesis or hypothesis, outlines the intention behind the paper.
Method	Provides information on design, procedures, assumptions, approach, data, etc.
Product	States main findings or results, the argument, or what was accomplished.
Conclusion	Interprets or extends results beyond the scope of paper, draws inferences, points to applications or wider implications.

The Study

This study integrated corpus-based approaches into text analysis of journal article abstracts (JAA), mainly based on three different frameworks of move theories. The following research questions (RQ)

guide the current research in terms of verb tense, move theories and their interactions in texts.

RQ 1. How are the tenses of the be-verb and reporting verbs applied in JA abstracts?

RQ 2. What is the tendency of using move theories in JA abstracts?

RQ 3. How does the verb tense act in JA abstracts?

METHODOLOGY: QUANTITATIVE AND QUALITATIVE APPROACHES

As suggested by McCarthy, Matthiessen, and Slade (2002), a combination of quantitative and qualitative methods (i.e., corpus analysis, move analysis, and tense analysis) were integrated into the current research (Swales, 1990; Swales & Feak, 2012). In other words, the corpus-based approach (CBA), tense (e.g., reporting verbs), and text analysis (e.g., move analysis) were employed and analyzed. This study has made an attempt to integrate the quantitative data into qualitative analysis based on "a mixed methods design" (Creswell & Plano Clark, 2007, p. 63) as shown in Figure 1. The results of the quantitative analysis of the data collection offer information for the qualitative analysis.
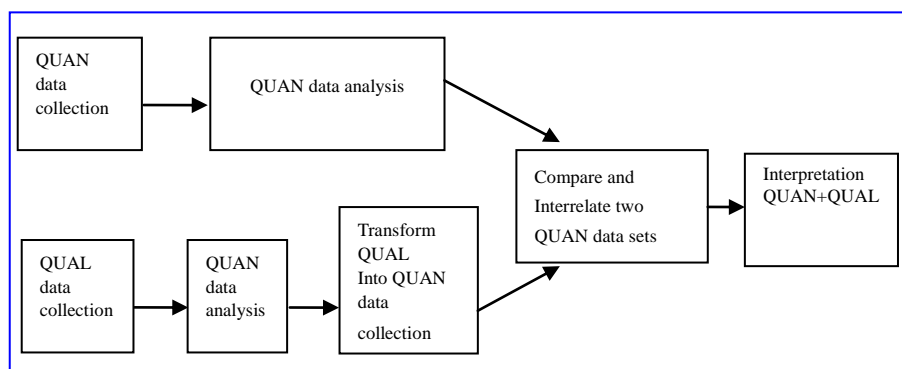

Figure 1. A mixed method design ("QUAN": quantitative; "QUAL": qualitative)

Data Collection

A total of 1000 journal articles were extracted from four prestigious

academic journals: the *Journal of Pragmatics* (JOP), the *Journal of Research in Reading* (JRR), the *Journal of Second Language Writing* (JSLW), and *Reading and Writing* (R&W), with 250 JA abstracts from each of the four journals. The criteria for selecting these journals for the corpus construction are mainly based on applied linguistics, reading, writing and discourse, at the SSCI journal level. This corpus comprises 9,983,482 tokens out of 117,855 types of distinct words.

In accordance with the principle aim of this current research, that is, to specify the variation in verb tense and rhetorical structure in JA abstracts, 1000 abstracts (172,524 running words) were additionally extracted from the retrieved research materials and constructed as the primary research corpora. Table 3 presents the number of JA abstracts and running words for each of the five primary sub-corpora. For example, JOP includes 250 JA abstracts, including 44,727 running words.

Table 3

Four Types of Sub-Corpora and Their Size

Type of sub-corpora	Number of JA abstracts	Running words
JOP abstracts corpus	250	44,727
JRR abstracts corpus	250	39,904
JSWL abstracts corpus	250	13,976
R&W abstracts corpus	250	73,817
1,000 abstracts corpus	1,000	172,524

Analytical Instruments, Grouping and Move Analysis

The data analysis is twofold. On the one hand, the quantitative analysis focuses on the investigation of verb tense, especially the tense of the reporting verbs, by manipulating the analytical instrument, *WordSmith version 5.0*. One-way ANOVA was used to calculate whether the frequency of occurrence of each lexical item is significantly different in the corpus (Oakes, 1998).

Compared with 3-level grouping, a 5-level grouping is either statistically or relatively more accurate. Therefore, we grouped the frequency of occurrences into five levels, i.e., 20% for each level, from lower (1-20%), low (21-40%), mid(dle) (41-60%), high (61-80%), to higher (81%) as shown in Table 4.

On the other hand, the qualitative analysis consisted of the assessment of the rhetorical structure in accordance with the CARS model, the IMRD structure, and the IPMPrC structure as suggested earlier in Literature Review.

Table 4

A 5-Level Grouping

	Level of frequency of occurrence	**Frequency range (%)**
1	lower	1-20
2	low	21-40
3	mid	41-60
4	high	61-80
5	higher	81-100

Table 5 illustrates the comparison of different transitions among the applied theories from three to five moves. The *Kruskal Wallis Test* was applied to calculate the tendency of using different moves in academic writing.

Table 5

Comparison of Move Theories

Three moves **CARS model (Swales, 1990)**	**Four moves** **IMRD (Lorés, 2004)**	**Five moves** **IPMPrC (Hyland, 2004)**
Context	Introduction	Introduction
Gap	Methods	Purpose
Present study	Results	Methods
	Discussion	Product
		Conclusion

Procedure and Analytical Framework

This mixed method study integrates corpus-based approaches (CBA) into text analysis. The CBA provides relevant information such as frequency, percentage, and concordance to text analysis for tense analysis and move analysis as presented in Figure 2 (Wang, 2013). In other words, the results of the quantitative analysis are provided for the qualitative analysis.
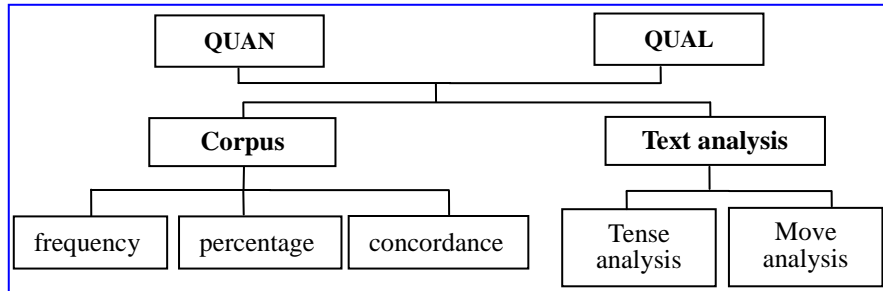
Figure 2. A concise mixed-method framework

RESULTS

The current study mainly reports on two dimensions of JA abstracts: **verb tense** and **rhetorical structure**. Firstly, the analysis of verb use has uncovered a prevailing application of the be-verb, including the forms, *is*, *are*, *was*, *were* (see Table 6), as well as reporting verbs such as *suggest* (freq. = 142), *show* (freq. = 136), *examine* (freq. = 96), *investigate* (freq. = 81), and *find/found* (freq. = 39/203), in applied frequency sequence of the base form. The reasons why they are selected and exemplified in the present study are threefold:

(1) These content words are commonly used reporting verbs as proposed by Hyland (1999) and Swale and Feak (2012, p. 213).
(2) Their base forms occur proportionally from higher to lower frequency in our corpus, which can be used to suggest the usage of verb tense in JA abstracts.
(3) Both the be-verb and reporting verbs are more commonly used in JA abstracts (see Tables 6 and 7).

Table 6

Top 5 Be-Verbs in the Corpus of 1000 Abstracts

N	Word	Freq.	%
1	is	1204	0.675
2	were	1142	0.640
3	are	901	0.505
4	was	864	0.484
5	be	539	0.302

Furthermore, Table 7 presents the Top 50 verbs (non-be verbs). It is evident that most of them are reporting verbs.

Table 7

Top 50 Verbs in the Corpus 1000 Abstracts

N	Word	Freq.	%	N	Word	Freq.	%
1	showed	204	0.114	26	included	71	0.040
2	found	203	0.114	27	reported	69	0.039
3	present	173	0.097	28	assessed	68	0.038
4	examined	172	0.096	29	presented	68	0.038
5	discussed	160	0.090	30	suggests	68	0.038
6	read	151	0.085	31	reports	64	0.036
7	suggest	142	0.080	32	changes	63	0.035
8	show	135	0.076	33	argue	62	0.035
9	control	129	0.072	34	involved	59	0.033
10	made	129	0.072	35	observed	58	0.033
11	investigated	120	0.067	36	identified	57	0.032
12	indicated	105	0.059	37	measure	57	0.032
13	examine	96	0.054	38	explored	56	0.031
14	revealed	89	0.050	39	impact	56	0.031
15	support	88	0.049	40	received	56	0.031
16	associated	84	0.047	41	produced	55	0.031
17	investigate	81	0.045	42	tested	55	0.031
18	examines	78	0.044	43	make	54	0.030
19	focused	78	0.044	44	measured	54	0.030
20	account	77	0.043	45	turn	51	0.029
21	provide	76	0.043	46	analyzed	50	0.028
22	predicted	75	0.042	47	considered	50	0.028
23	transfer	75	0.042	48	explore	50	0.028
24	conducted	73	0.041	49	provided	50	0.028
25	indicate	72	0.040	50	suggested	50	0.028

RQ 1. How are the tenses of the be-verb and reporting verbs applied in JAAs?

The be-verb plays a dual role in texts: (a) main verb and (b) auxiliary (see Appendix), but we focus on the usage of its tense in the present study. Prior to tackling the various findings on the different uses of verb tense, a clearer comparison of how the **be-verb** is applied in each of the

research corpora is shown in Table 8.

As can be seen, one-way ANOVA shows that JOP ("is + are" = 71%) has a significant tendency (F = 9.938, *p< .05) to use present tense, whereas JRR (56.6%) and R&W (65.5%) have a similar tendency (**p< .01) to apply past tense ("was + were"). As for the tense use in JSLW, the frequency of occurrence is varied (p> .05). This finding is also reflected in the results obtained from the reporting verbs.

Table 8

Various Forms of the Be-Verb and Their Frequency

Form	JOP (%)	JRR (%)	JSLW (%)	R&W (%)	ALL	%
is	**526** (43.7)	200 (16.8)	**275** (27.4)	173 (14.2)	1204	25.9
are	**329** (27.3)	206 (17.3)	213 (21.2)	153 (12.6)	901	19.4
was	75 (6.2)	**300** (25.2)	134 (13.3)	**355** (29.2)	864	18.6
were	83 (6.9)	**374** (31.4)	**243** (24.2)	**442** (36.3)	1142	24.6
be	192 (15.9)	110 (9.2)	140 (13.9)	94 (7.7)	536	11.5
total	1,205	1,190	1,005	1,217	4,647	(100%)

As can be seen, both Table 9-1 and Text 1 present examples of the verb "show" in its present tense, past tense, passive voice and present perfect forms across the different journal papers, but it is also noted that its noun never occurs in the corpus. An ANOVA Test shows that the verb "show(s)" with present tense occurs significantly (**p< .01) in JOP only. However, the past tense occurs significantly (*p< .05) in JRR (freq. = 77) and R&W (freq. = 88). As for the passive voice and present perfect forms, they do not occur significantly in the corpus.

Table 9-1

Variation of "Show" in the Sub-Corpora

	Form	JOP	JRR	JSLW	R&W	ALL	%
show	Present tense	**51**	15	27	17	**110**	**25.5**
(base form)	Infinitive (to _)	12	4	5	1	22	5.1
	Past aux + ___	0	2	0	1	3	0.7
-s	Present tense	22	8	11	2	43	10.0
-ing	Nonfinite	3	6	1	4	14	3.2
	Progressive	0	0	0	0	0	0
-ed	Past tense	13	**77**	26	**88**	**204**	**47.2**
	Passive voice	11	4	6	2	23	5.3
	PP form	4	3	3	3	13	3.0
	Sum	126	119	73	116	422	

Text 1. *Different Verb Forms of "Show"*

Present tense (1)	20 h). Both native and non-native corpora show that GEs are in the process of becom the utterance and text. Results of experiment 1 show that explicitly evaluative irony is perce of its subjectivity category. First, we show that remarkable convergence exists
Present tense (2)	However, analysis of code-switching examples shows that different types of code-switches attract how participants achieve face. The data analysis shows that interpreting and doing relational work are of the International Corpus of English. The analysis shows that two different uses of final then need to be
Past tense	group just before the post-tests. This study showed that the PCR group performs better in two languages. The address exchange showed no consistency with expected students in the use of pragmatic markers, and showed a greater sensitivity to different typ
Passive voice	by Johns is at GSU. Of the original 191 NNSs, 16 were shown in the Registrar's record keeping system a as writing for fun, is presented, and its advantages are shown. The present study investigated EFL learn words on eye movement behaviour during reading, as shown by both fixation probabilities and reading ti
Present perfect	problem solving activity are discussed. Research has shown that task-based computer-mediated investigating this process in skilled adult readers has shown very robust effects that encountering a Learners' attitude to pair work Various authors have shown the first person to play a key role in the

Table 9-2 also reveals that each research corpus has its own tendency regarding the application of tense as stated in the analysis of the *be-verb*. The present tense "examine(s)" (20.8%) tends to occur in JOP (freq. = 10 + 32) and JSLW (freq. = 11 + 25). However, the past tense (24.8%) occurs relatively more in JRR (freq. = 37) and R&W (freq. = 56), although they all occur insignificantly (F=1.65, p = .05) in the corpus.

Table 9-2

Variation of "Examine" in the Sub-Corpora

	Form	JOP	JRR	JSLW	R&W	ALL	%
examine	Present tense	10	4	11	8	33	8.8
(base form)	Infinitive (to __)	9	12	10	32	63	16.8
	Past aux + ___	0	0	0	0	0	0
-s	Present tense	32	16	25	5	78	**20.8**
-ing	Nonfinite	7	3	12	7	29	7.7
	Progressive form	0	0	0	0	0	0
-ed	Past form	4	37	10	56	107	**28.5**
	Passive voice	9	15	12	22	58	15.5
	PP form	1	1	2	3	7	1.9
	Sum	72	88	82	133	375	

Table 9-3

Variations of "Suggest" in the Sub-Corpora

	Form	JOP	JRR	JSLW	R&W	ALL	%
suggest	Present tense	24	31	38	45	138	**47.9**
(base form)	Infinitive (to _)	2	0	1	1	4	1.4
	Past aux + ___	0	0	0	0	0	0
-s	Present tense	15	23	23	7	68	**23.6**
-ing	Nonfinite	2	8	9	9	28	9.7
	Progressive	0	0	0	0	0	0
-ed	Past tense	3	3	2	3	11	3.8
	Passive voice	5	6	16	7	34	11.8
	PP form	1	0	2	2	5	1.8
	Sum	52	71	91	74	288	

Table 9-3 indicates that the present tense of "suggest(s)" occurs significantly (*F=114.7*; **p<.01) in the corpus (47% + 23.6% = 71.5%). In other words, the present tense occurs significantly in each of the

different sub-corpora: JOP (*F=243*, **p = .004), JRR (*F=216.8*, **p = .005), JSLW (*F=33.9*, *p = .028), and R&W (*F=246.9*, **p = .004). However, the other forms occur variously and insignificantly.

Table 9-4
Variations of "Investigate" in the Sub-Corpora

	Form	JOP	JRR	JSLW	R&W	ALL	%
investigate	Present tense	4	1	2	3	10	3.7
(base form)	Infinitive (to __)	15	18	16	22	71	26.6
	Past aux + ___	0	0	0	0	0	0
-s	Present tense	20	5	16	5	46	17.2
-ing	Nonfinite	5	4	5	5	19	7.1
	Progressive form	0	0	1	0	1	0.4
-ed	Past form	3	21	16	31	71	26.6
	Passive voice	9	11	4	13	37	13.9
	PP form	2	0	8	2	12	4.5
	Sum	58	60	68	81	267	

Table 9-4 presents that the infinitive form (26.6%) and the past form (26.6%) of "investigate" occur relatively more often than others in the sub-corpora. However, none of them occurs significantly in the corpus (*F=1.2*, p=.603).

Table 9-5
Variations of "Find" in the Sub-Corpora

	Form	JOP	JRR	JSLW	R&W	ALL	%
find	Present tense	3	9	8	1	21	8.5
(base form)	Infinitive (to __)	2	6	6	3	17	6.9
	Past aux. + __	0	0	0	1	1	0.4
-s	Present tense+__s	2	1	0	0	3	1.2
-ing	Nonfinite	0	0	2	0	2	0.8
	Progressive form	0	0	0	0	0	0
	Past tense	4	8	16	15	43	17.4
-ed	Passive voice	32	43	32	43	150	**60.7**
	Past perfect	2	3	3	2	10	4.1
	Sum	45	70	67	65	247	
		(18.2)	(28.3)	(27.1)	(26.3)		

As for the reporting verb "find," this particular word has a consistent tendency to be used in the passive voice in all sub-corpora. The findings in Table 9-5 indicate that the passive voice of "find" occurs significantly ($F=29.7$, $**p < .01$) at a high level (60.7%) more than any other forms with writers tending to use passive "found" in JAAs: JOP ($F=170.1$, $***p=.000$), JRR ($F=40.4$, $**p=.001$), JSLW ($F=8.34$, $*p=.025$), and R&W ($F=29.7$, $**p=.002$). There are four other forms of "find," that is "past auxiliary + ___," "present tense + ___s," "nonfinite," and "progressive form" which are seldom used in journal abstracts.

The practical examples of past tense and passive voice extracted from each research corpus are demonstrated in Texts 2-1, 2-2, 2-3, and 2-4. All examples indicate how the past active and passive voices of "found" are used in these journal article abstracts.

Text 2-1

> - *"Finally, the study **found** that while the majority of the complaints on TripAdvisor can be considered indirect (or third party) complaints, there were nevertheless some examples that blur the direct/indirect dichotomy."* (JOP – past tense)
> - *"It **was found that** although the same discourse of legitimation (the Bible) is used in some of the arguments, addressers apply their own experience to their views of this discourse and thus create opposing arguments."* (JOP – passive voice)

Text 2-2

> - *"We **found** an association between the HLE and ethnicity/SES, indicating that (Dutch) majority children and children from high SES families had, in general, the most stimulating HLEs."* (JRR – past tense)
> - *"It **was found that** letter knowledge was specifically related to the development of phoneme segmentation in pre-literate children."* (JRR – passive voice)

Text 2-3

> • *"While some **found that** peer comments were viewed with skepticism and induced little revision, others **found that** they did help learners to identify and raise awareness of their strengths and weaknesses in writing."* (JSLW – past tense)
> • *"The best measure **was found** to be total words in error-free clauses."* (JSLW – passive voice)

Text 2-4

> • *"A principal components analysis **found** partial dissociability between higher-level skills including reading comprehension, vocabulary and print exposure, and lower-level skills including decoding and spelling in adult readers."* (R&W – past tense)
> • *"Both word reading and comprehension **were found to be** highly stable, and genetic influences were primarily responsible for that stability."* (R&W – passive voice)

In general, the JOP abstracts significantly use present tense more often than the other three journals do, but the variations occur more often in JSLW. In addition, either the past tense or the passive voice occurs significantly or relatively more often in JRR and R&W.

RQ 2. What is the tendency of using move theories in JA abstracts?

Turning to the exploration of the move analysis reveals a wide application of the three-, four-, and five-move theories in JA abstracts. The distribution of each applied rhetorical structure is shown in Table 10.

The three move theories are applied differently in each of these four journals. For example, the percentages (total: 100%) in JOP are diverse, including the CARS model (19.2%), IMRD (47.6%), and IPMPrC (33.2%). For three-move abstracts, it is apparent that the CARS model is chosen more in JSLW (28.4%), but it is the least used move theory (17.3%) in all of the other JAAs. It is also noted that the IMRD four-move structure is the most commonly applied rhetorical structure in these abstracts. Over half, 53.9% of the JAAs were found to be in accordance with the IMRD structure. As for the five-move abstracts, the IPMPrC structure (28.8%) occurs more in both JOP (33.2%) and JSLW (33.6%).

Table 10

Application of Move Theories in Different Sub-Corpora of JA Abstracts

JA Abstract Corpora	CARS model		IMRD structure		IPMPrC structure		Total	(100%)
	N	%	N	%	N	%	N	%
JOP	48	19.2	119	**47.6**	83	33.2	250	100%
JRR	32	12.8	166	66.4	52	20.8	250	100%
JSLW	71	**28.4**	95	**38**	84	**33.6**	250	100%
R&W	22	8.8	159	63.6	69	27.6	250	100%
Sum (%)	173	17.3	539	**53.9**	288	28.8	1,000	100%

RQ 3. How does the verb tense act in JA abstracts?

As suggested in Table 1 (Swales & Feak, 2012, p. 287), the present tense tends to be used in the Introduction and Discussion sections, and the past tense in the Method and Result sections. However, it is likely that free variations occur in the whole abstract. For example, our findings also show that (1) different tenses may appear in different sections of the same abstract; (2) the same tense may or may not occur throughout the same abstract. These examples are demonstrated below.

Interaction between tense and the CARS model (3-move analysis)

Turning now to the findings of the three-move structure, it is revealed that only 17.3% of the JA abstracts are written in accordance with the CARS model; however, this does not detract from the importance of each move theory. An example randomly selected from the JSLW abstract corpus is shown in Text 6, which can be also analyzed using a variation of *Problem-solution model* (Swales & Feak, 2012, p. 103). The highlighted boldfaced words imply the impartial selection of tense shown in the JSLW abstract corpus.

Text 6. *Example of CARS model (3-move)*

Move	JA abstract from JSLW corpus
1	English as an Additional Language (EAL) students' textual borrowing in disciplinary writing **has attracted** wide research interest in recent years.
2	**However**, much of the research **was conducted** in the regular curriculum setting while the relevance of the issue in a writing-for-publication context **has largely been overlooked**. In particular, disciplinary experts' perspectives concerning textual borrowing **have not been explored in-depth**.
3	The present study **fills** such a gap in the literature by looking into how an expert writer, a professor of biochemistry in a Chinese university, perceived novices' textual borrowing in their initial drafts and eliminated such borrowing as he redrafted novice texts for publication. The study **revealed** that the expert had complete tolerance for his students' copying and that his elimination of it during redrafting was guided by his genre expertise and rhetorical skills for publishing. The paper also **pointed out** that the shortage of explicit teaching from the supervisor to his students as well as the lack of active participation of his students in the writing process was bound to the publication pressure in the local institutional context.

It is clear that the transition of each move is logically presented in the three-move theory. As can be seen, the present perfect, present tense and past tense interact with the different moves.

Move 1: a general introduction appealing to readers' attention
- "English as an … in disciplinary writing **has attracted** … in recent years

Move 2: indicating the gap
- The signal, "However," indicates the problem or the difference between the current issue, i.e., ".. **have not been explored in-depth**." and the previous positive statement such as "**has attracted** wide research interest."

Move 3: presenting the current findings
- "The present study **fills**…"
- "The study **revealed** that…"
- "The paper also **pointed out** that…"

Interaction between tense and IMRD structure (4-move analysis)

Text 7 illustrates the transitions of the moves in the IMRD structure, which was randomly selected from the JRR abstract corpus. This abstract is constructed as follows:

(I) Introducing the specific research focus with the hidden purpose
- "This semi-longitudinal study **examined** the development …" implies that "The **aim** of this semi-longitudinal study **examined** the development…" where the underlying research **aim** is understood.

(M) Method signals
- participants: "**106** third graders and **111** fourth graders of **seven** Flemish primary schools,"
- measures: "primary trait" and "text quality"
- Student-level predictors: age, SES and home language
- classroom-level predictor: home language pattern of the classroom.

(R) main findings
- a significant mean growth
- effect sizes differed from
- Home language (Turkish) had a significant negative effect…
- the negative effect of low SES…
- A supplementary negative effect…

(D) the derived implications.
- **Implications** of the study highlight the importance of…
- the need to consider the poor performance of…

It is especially observed from the highlighted boldfaced words in Text 7 that the tendency of verb tense and the reporting verb choice are found to reflect the findings, which indicates the tendency of past tense use as well as passive voice applied in the JRR corpus, as stated in the former sections.

Text 7. *Example of IMRD structure (4-move)*

Move	JA abstract from JRR corpus
I	This semi-longitudinal study **examined** the development of narrative writing quality of young Turkish second language learners in mainstream Dutch-only education, and the impact of student-level and classroom-level predictors of narrative writing quality, using hierarchical linear modelling.
M	Writing samples of 106 third graders and 111 fourth graders of seven Flemish primary schools **were** collected at the beginning and at the end of the school year. Measures included one holistic primary trait judgment, and six objective indices of text quality. Student-level predictors included age, SES and home language, while the classroom-level predictor focused on the home language pattern of the classroom.
R	There **was** a significant mean growth for each index in each grade, but effect sizes **differed** from quite large for content and word level indices over moderate for sentence level indices to small for the text level index. Home language (Turkish) had a significant negative effect on all but one variables, particularly in Grade 4, while the negative effect of low SES was much more limited. A supplementary negative effect was found for homogeneity of classroom population.
D	**Implications** of the study **highlight** the importance of student and classroom characteristics in writing achievement as well as the need to consider the poor performance of Turkish children.

Interaction between tense and IPMPrC structure *(5-move analysis)*

The third example, randomly selected from the JSLW corpus (see Text 8), is the IPMPrC structure, which is adopted by 28.8% of the JA abstracts. Text 8 presents the transitions of the five-move theory from (I) establishing the context, (P) stating the main purpose, (M) presenting the methodology, (Pr) detailing the observations, and (C) discussing the results. Interestingly, the converse tendency of present tense use is also reflected in the randomly selected example.

22

Text 8. *Example of IPMPrC structure (5-move analysis)*

Move	JA abstract from JOP corpus
I	Hedges and boosters **are** important metadiscursive resources for writers to mark their epistemic stance and position writer–reader relations.
P	Building on previous research that suggests notable cross-cultural and cross-linguistic differences in the use of hedges and boosters in academic discourse, this comparative study **investigates** the use of such discourse markers in academic article abstracts.
M	Based on a corpus of 649 abstracts collected from 8 journals of applied linguistics, this study **examines** if hedging and boosting strategies differ (a) between applied linguists publishing in Chinese- and English-medium journals and (b) between authors of empirical and non-empirical academic articles.
Pr	Quantitative analyses **indicated** that abstracts published in English-medium journals featured markedly more hedges than those published in Chinese-medium journals and that abstracts of empirical research articles used significantly more boosters than those of non-empirical academic articles. Textual analyses further **revealed** that the distinct patterning of hedges and boosters in Chinese and English abstracts had a joint, interactive effect on the authorial certainty and confidence conveyed therein.
C	These results **are discussed** in terms of culturally preferred rhetorical strategies, epistemological beliefs, lack of facility in English as a second/foreign language, and the nature of supporting evidence drawn on for knowledge claims in different types of academic writing.

SUMMARY AND CONCLUDING REMARKS

This current research aimed to investigate tense use and rhetorical structure in JA abstracts. The implemented data analysis has indicated the variant tendency of verb tense in each section of an academic article.

The findings of the verb tense are reflected in the assessment as shown in the transitions of rhetorical structure and are summarized below.

Table 11 shows the findings of how the tenses of the *be-verb* and reporting verbs are used in different JA abstracts in response to RQ1. The ANOVA test shows that the frequency of present tense is significantly high (*p <.05) in JOP abstracts (70.1%), but relatively low in both JRR (34.1%) and R&W abstracts (26.6%). However, the frequency of occurrence for the present tense in JSLW abstracts is medium (48.6%).

In contrast, the frequency of the use of the past tense in JOP and JSLW abstracts is lower (13.1%) and low (37.5%), respectively. However, the frequency of past tense use is middle/moderate (56.6%) in JRR abstracts, and high (65.5%) in R&W abstracts.

Table 11

The Tendency of Verb Tense in Different JA Abstracts (RQ1)

Journals\tense	Present tense	Past tense
Journal of Pragmatics (JOP)	high (70.1%)	lower (13.1%)
Journal of Research in Reading (JRR)	low (34.1%)	mid (56.6%)
Reading and Writing (R&W)	low (26.6%)	high (65.5%)
Journal of Second Language Writing (JSLW)	mid (48.6%)	low (37.5%)

The findings can be compared with Swales and Feak (2012, p. 287) as shown earlier in Table 1, but the tendency of verb tense usage also depends on different moves or journals. Table 1 presents the tense usage in different moves, but our findings indicate that the variations of tense usage occur in different moves; therefore, we focus on the whole text of an abstract instead of each section of an abstract.

As for the move analysis in response to RQ2, Table 12 summarizes the tendency of using different theories in analyzing abstracts, although the *Kruskal Wallis Test* shows that they all occur insignificantly (p=.392). Our findings also suggest that the 3-move CARS model has a low level of preference in JA abstracts. However, the 4-move IMRD model is adopted relatively more often, two times more than the IPMPrC model and three times more than the CARS model. As for the 5-move analysis of abstract writing, IPMPrC is used to a moderate extent.

Table 12

The Tendency of Using Different Move Theories in Abstract-Writing (RQ2)

Journals\move theories	CARS (3-move)	IMRD (4-move)	IPMPrC (5-move)
JOP	lower (19%)	mid (48%)	low (33%)
JRR	lower (13%)	high (66%)	low (21%)
R&W	lower (9%)	high (64%)	low (34%)
JSLW	low (28%)	low (38%)	low (28%)
All	lower (17%)	mid (54%)	low (29%)

As for RQ3, the points of interaction between tenses and moves are partially summarized below as well as in RESULTS 4.3, Text 6, Text 7, and Text 8. For example, the present perfect, present tense and past tense interact with the different moves in the JSLW abstract corpus. Additionally, there is a greater tendency to use past tense and passive voice in the JRR corpus. It is believed that the variations in verb tense as well as the rhetorical structure are strongly connected and interrelated.

Last but not least, the pedagogical experiment design such as teaching move analysis in abstract writing means that this study has actual benefit for language learners. Examples have been presented and discussed in 4.3. Therefore, it is suggested that the various move analyses, and language use such as tense and the structural patterns of reporting verbs should be taught in academic writing classes using authentic materials of academic journal corpora.

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APPENDIX

The Dual Role of the Be-Verb

Table 13 shows that the token "be" plays a dual role in journal article abstracts: (a) main verb (freq. = 203) and (b) auxiliary (freq. = 333). Examples are presented as follows:

(a) "be" as main verb
    1. Doing so enables us to consider that voila` can **be** a representative without being followed by a nominalised linguistic item.
    2. They tended to **be** more precise, larger, or more visually prominent after feedback.
(b) "be" as auxiliary
    1. Thus, the Americans situate themselves separately from the other in the interaction, where a oneself-vs.-the-other facing relationship can **be** observed.
    2. Therefore, the basic constituents of two types of commercial message will **be** described.

Table 13

The Dual Role of the Be-Verb

Form	JOP (%)	JRR(%)	JSLW(%)	R&W(%)	ALL	%
be	192 (15.9)	110 (9.2)	140 (13.9)	94 (7.7)	536	11.5
(main verbs	52	42	55	44	203)	
(auxiliary	140	68	85	50	333)	

期刊論文摘要的時態用法及移動分析

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一直以來，人們對於期刊論文摘要的寫作興趣與時並進、與日俱增；而這普遍存在的興趣，也加速提升了寫作上進一步的研究。因此，本論文的研究目的，旨在探討動詞時態的各種應用和期刊論文摘要的修辭結構。本語料庫搜集了 1000 篇期刊論文摘要，這些論文是從四種頗負盛名的應用語言學相關期刊搜集而來，它們都屬於 SSCI 等級的期刊。本研究的量化分析顯示，時態的使用傾向於常用的報告動詞。例如，在語用學期刊論文的摘要當中，變異數分析顯示，現在式時態的使用頻率具顯著升高 $(p < .05)$。再者，質性分析則顯示了，三步、四步和五步移動理論、CARS 模式、IMRD 結構以及 IPMPrC 結構理論，分別受到了廣泛的採用。研究結果也鮮明地指出，在摘要的寫作上，IMRD 結構的使用比其他模型更受歡迎。這些發現對於期刊摘要，提出具有系統化的寫作模式，並且也進一步啟發了摘要寫作上饒富教學導向的潛力。

關鍵詞：時態、移動、修辭結構、摘要、IMRD