Shell Nouns on the Move: Expert and L2 Student Abstracts in Applied Linguistics

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Abstract

Shell nouns perform rhetorical functions of encapsulating propositions in text, reiterating the encapsulated propositions, and signaling macro-textual structures, which enhances overall coherence of texts. The aim of the study is to describe distribution and rhetorical functions of shell nouns in abstracts of research articles in applied linguistics. Two corpora were compiled from 20 journal abstracts of experts and 20 proceedings abstracts of L2 students. To analyze shell nouns from a macro-textual perspective, all abstracts were tagged with moves of communicative acts (Background-Purpose-Method-Results-Conclusion of studies). Results indicated the experts frequently used eight shell nouns (*result, effect, change, type, task, finding, method, measure*). They used these shell nouns more frequently with rhetorical functions of signaling moves and reiterating the encapsulated propositions across moves, as compared to L2 students.

*Keywords***:** expert abstracts, L2 student abstracts, rhetorical moves, shell nouns

Introduction

An abstract should feature a brief overview of a research article (RA) by highlighting the design and significance of the study, so as to facilitate readers' evaluation of the study quality (Dos Santos, 1996; Hyland, 2000). This evaluation may affect whether readers will continue reading if they have not perused the RA, or to what extent they consider an abstract rhetorically effective in outlining the RA after perusing (Cremmins, 1982). An abstract is expected to have a clear information structure presenting the background, purposes, methodology, results, and conclusions of a given study (Lau, 2004).

The information structure of an abstract has been systematically "move-analyzed" in the field of English for academic purposes (EAP) (Dos Santos, 1996; Lau, 2004; Pho, 2008). "Move" in an abstract is analyzed as a segmented act that fulfills a communicative purpose deemed conventional in the genre of RA abstracts (e.g., stating research purposes or results) (Dos Santos, 1996; Swales, 1990). When moves of an abstract are clearly identified, they are applied to improve the writing of second language (L2) students (Hyland, 2000). A successful application is in Swales and Feak's (2004) textbook for L2 RA writing which contains a move structure of an abstract, Background-Aim-Method-Result-Conclusion.

Recent developments of move-structure research have led to an increasing interest in how move structures are realized linguistically so as to contribute to the overall coherence of an abstract (Hancioglu, 2009; Hsieh & Liou, 2008; Pho, 2008). When we attempt to explore key features contributing to the overall coherence of abstract, shell nouns may be one of great importance. Shell nouns are well-recognized as effective in linking propositions in texts (Flowerdew, 2003, 2006; Francis, 1986; Halliday & Hasan, 1976; Schmid, 2000). However, shell nouns in the move structure of abstract have received little research attention. Shell nouns are unspecified nouns (e.g., e*ffect* and *type)* with no specific meanings by themselves. Their meanings emerge from contexts (Schmid, 2000), as shown by the noun *problem* in the following example: "Incoherence had been found as one of the major *problems* in Taiwanese EFL learners' written products."

Specifically, shell nouns perform crucial rhetorical functions, including "encapsulating" propositions that spread over discourse (Sinclair, 1992), reiterating the encapsulated propositions, and signaling macro-structure of texts. This in turn organizes text as a cohesive unit with ideas developed coherently (Charles, 2003; Flowerdew, 2003). These functions of shell nouns are well-recognized in the literature, albeit a few analogous terms are used, including *anaphoric nouns* (Francis, 1986), *carrier nouns* (Ivanic, 1991), *labels* (Francis, 1994), and *signaling nouns* (Flowerdew, 2003, 2006). Despite these diverse terms, shell nouns are handy devices to link propositions for the overall coherence of texts (Flowerdew, 2003; Francis, 1986).

Although shell nouns are handy in building the overall coherence of an abstract by signaling move structure, fewer studies explore this issue. This study seeks to describe the distribution and rhetorical functions of shell nouns in move structure in abstracts written by experts and L2 students in applied linguistics. The study will explore how efficient use of shell nouns can coherently connect propositions against the backdrop of move structure, achieving coherence in abstracts.

Research Framework

Analysis of Moves in Abstracts of Research Articles

Writing an abstract often poses serious problems for L2 students because its genre role requires a minimum use of words but comprehensive coverage of RA contents (Dos Santos, 1996; Hyland, 2000; Lau, 2004). How this genre role of abstracts is skillfully fulfilled in expert works has been schematically analyzed in varying move structures, including Introduction-Method-Results-Discussion (Swales, 1990), Background-Aim-Method-Product-Conclusion (Hyland, 2000), and Background-Aim-Method-Results-Conclusion (Swales & Feak, 2004). The last structure, proposed in a textbook for L2 RAs writing, is commonly applied in the field (Hsieh & Liou, 2008; Lau, 2004), because its move labels directly outline communicative purposes of RAs. Extending from the move structure, recent research focuses on how moves are realized linguistically to identify discourse structure and functions typical of RA abstracts (Hsieh & Liou, 2008; Hancioglu, 2009).

More specifically, Hsieh and Liou (2008) targeted journal abstracts in applied linguistics to present lexico-grammatical patterns in move structure, including *the goal of the study is* in the Purpose move; *the results showed that* in the Result move; and *findings of the study indicated*, in the Conclusion move. Similar lexico-grammatical patterns were presented by Hancioglu (2009) from abstracts in the fields of Arts, Sciences, Social Sciences, and Humanities and Architecture, including *the goal of this study is* in the Purpose move; *the analyses suggest that* in the Result move; and *findings demonstrate evidence* in the Conclusion move. These patterns were then introduced to L2 students as a tool kit for efficiently constructing the move structure in abstracts (Hancioglu, 2009; Hsieh & Liou, 2008).

While some evidence has emerged on how moves can be clearly articulated by particular lexico-grammatical patterns in abstracts (Hancioglu, 2009; Hsieh & Liou, 2008), rhetorical functions of the patterns seem inadequately analyzed. Further analysis may reveal these rhetorical functions in signaling propositions in abstracts, which thus becomes one of the research aims in the present study.

Analysis of Shell Nouns

From the cognitive and functional perspectives, the lexico-grammatical patterns (e.g., *the goal of this study is*; *results showed that*) are formulated by core nouns, such as *goal, result*. Nouns like these are termed "shell nouns" by Schmid (1999), and their rhetorical functions are systematically described with examples taken from a 225-million-word English corpus. This corpus was composed of two thirds of the media texts with spoken and written data (e.g., *The Times*, tabloids, and transcripts of BBC broadcasts) (Schmid, 2000). These media-based texts constituted a sizable corpus with substantial examples of shell nouns to present a relatively reliable link between corpus, linguistic system, and cognition (Schmid, 2000).

Shell nouns are defined as inherently carrying semantic gaps that should be filled by contents of the shell nouns in adjoined co-texts so as to realize the nouns' meanings (Charles, 2003; Schmid, 2000). Such contents are termed "shell contents" (Schmid, 2000, p. 21). Semantic maps are filled by shell contents in the preceding text via anaphoric reference, and by shell contents in the following text via cataphoric reference. Yet, some semantic gaps can

hardly be bridged by textual contents, and require world-based knowledge of readers via exophoric reference. Nouns with such gaps contribute less to textual cohesion; they are not categorized as shell nouns (Aktas & Cortes, 2008; Schmid, 2000). An example is displayed in the term "Task-based Approach": "The study found that the **Task**-based **Approach** worked well in terms of equipping the subjects with knowledge of audience awareness…" Here *task* and *approach* are not shell nouns, because realizing their meanings requires exophoric references to additional discipline-specific knowledge beyond the text. As Schmid (2000) systematically defines shell nouns by availability of their in-text co-references, the study adopts this definition.

Rhetorical functions of shell nouns fall into three categories: characterization, temporary concept-formation, and linking (Schmid, 2000). Drawing on these three categories, the study elaborates on shell noun use with examples extracted from the corpora collected for the present study. Semantically, characterization refers to the function of characterizing complex chunks of information, usually achieved by use of phrases, longer clauses or texts. In Example 1, the first *type* conveys the focus of the study (i.e., the rhetorical organization category), and it further encapsulates this focus by supplying sub-categories of *type* at the in-clause level. Similarly, in Example 2, *effect* characterizes the major design of the study.

> (1) Based on a small scale study it reveals <u>two major **types** of rhetorical organization, here called the IMRD type and the CARS type.</u> When thematic analysis, in terms of thematic progression and method of thematic development, is applied to <u>the two **types** of</u> structure…. (EAC 14. EAC 14 is abbreviated from Abstract 14 in Expert Abstract Corpus we collected. This abbreviation rule applies afterwards.)

> (2) The study investigates **effects** <u>of exposure frequency and contextual situations on EFL students' vocabulary acquisition.</u> (SAC 6. SAC 6 is abbreviated from Abstract 6 in Student Abstract Corpus.)

Cognitively, temporary concept-formation inserts complex information into temporary nominal concepts by repeating a shell noun in texts. Again in Example 1, as the first *type* encapsulates the purpose of the study, reiterating the second *type* can remind readers of the encapsulated proposition. This reiteration of *type* at the across-clause level enables readers to easily retrieve the above-mentioned proposition. Textually, the function of linking is to connect a set of nominal concepts in text. In Example 3, *results* fulfills the linking function by signaling a causal relation between the study outcomes and the study design construed earlier. *Results* can hardly be interpreted correctly unless readers referred back to the study design. Finally, as shown in Example 1 where the semantic and cognitive functions concur, the three functions of shell nouns may operate simultaneously (Schmid, 2000).

> (3) <u>These</u> preliminary **results** <u>demonstrate how a learner corpus can provide valuable information about learners' interlanguage</u>. (SAC 7)

Following this research vein, a burgeoning amount of research has advanced our understanding on the cohesive effects that shell nouns produce for connecting propositions in academic discourse (Aktas & Cortes, 2008; Charles, 2003, 2007; Flowerdew, 2006). Targeting theses of English-native speakers in politics and material science, Charles detailed uses of shell nouns in two patterns: "*this +N*" (2003) linking to preceding messages, and "*N+ that*" (2007) linking to

forthcoming messages. She argues that using shell nouns skillfully helps thesis writers display a discipline-specific style in thesis (e.g., by projecting a proper stance). Targeting L2 student argumentative essays, Flowerdew (2006) identified four types of errors in shell nouns, including incorrect use, no use, and collocation and colligation errors. He also described a tendency that an increasing number of errors, resulted in a lower essay score. Flowerdew (2010) further compared L2 student essays with L1 writers', revealing that L2 students use fewer shell nouns regarding frequency and variety. Targeting RAs of experts and L2 students spanning six disciplines, Aktas and Cortes (2008) indicate L2 students extensively used the characterization and linking functions of shell nouns, yet they less frequently used the temporary concept-formation function for consolidating key concepts. This underuse suggests that L2 students' ability to convey this function of shell nouns is relatively underdeveloped. Pedagogically, Aktas and Cortes (2008) suggested that future studies perform "deeper text analysis" on experts' distinctive use of the function (p.13).

The deeper text analysis on shell nouns can target a discipline, to reflect word-choices or rhetoric-styles typical of the discipline. The analysis can also target a particular RA section, regarding cross-sectional variations in rhetorical functions (e.g., abstracts outline studies; introductions provide study rationales) (Hyland, 2000; Kanoksilapatham, 2011). Two recent studies show such analysis on shell nouns in the literature reviews of PhD theses: Thompson (2009) in Agricultural Botany and Economics, Food Science and Technology, and Psychology, and Flowerdew and Forest (2009) in Applied Linguistics. Thompson (2009) identified how thesis writers used *evidence, problem,* and *model* to voice their opinions on the current knowledge base. Flowerdew and Forest (2009) described how *research, study*, and *studies* rhetorically interact with the move structure. With a similar interest in the interaction of shell nouns and move structure in the introductions of research articles, Kanoksilapatham (2011) targeted the published journal articles in civil engineering. She then proposed a shell-noun-based linguistic device that is commonly used to articulate study purposes; namely, the objective/purpose/aim(s) + of the/this +research/paper/experiment/study+ is/are/was/were.

Abstracts can be another target for analysis because they function as an RA miniature expected to encapsulate RA essence (i.e., the design and significance) (Hancioglu, 2009; Hsieh & Liou, 2008; Lau, 2004; Swales & Feak, 2004). This encapsulation should be densely informative given tight constraints of word-length in abstracts (Lau, 2004). Rhetorically, this requirement for dense encapsulation may entail shell nouns as effective ties of propositions in abstracts. The dense encapsulation is often achieved by shell nouns laden with both immediate in-clause contents and cross-clause ones. Accordingly, the dense encapsulation in abstracts seems satisfied rhetorically.

Through a disciplinary-specific lens, the study seeks to scrutinize the distribution and rhetorical functions of shell nouns in the move structure in abstracts of the experts and L2 students in applied linguistics. Research questions are raised below:

1. Do shell nouns occur in the Student Abstract Corpus as frequently as those in the Expert Abstract Corpus? Which shell nouns have high-frequency in the Expert Abstract Corpus?

2. What is the distribution of the most frequent shell nouns across moves in abstracts?

Method

Corpus

Two corpora were compiled from journal articles of experts and from proceedings articles of L2 students in applied linguistics. The Expert Abstract Corpus (the EAC), totaling **3,223 words,** was compiled from twenty journal abstracts published from 1998 to 2004 (See Appendix A). These abstracts were from six journals, including *CALICO Journal, English for Specific Purposes, Language Learning, Modern Language Journal, Studies in Second Language Acquisition,* and *TESOL Quarterly*. The journals were chosen for their prestige in the field. The L2 Student Abstract Corpus (the SAC), totaling **4,039 words,** was compiled from twenty abstracts published from 2007 to 2008(See Appendix B). These abstracts were from the proceedings of an English-teaching-association annual conference in an Asian country. Once submitted abstracts were accepted by the conference, the proceedings published both the abstracts and entire RAs. In the proceedings, abstracts of L2 graduate students (master's and doctoral students) were randomly selected for the study. The status of the student abstracts was verified by Google-searching the affiliation information the writers provided. Only when the information was confirmed, would the abstracts be included.

Although we regarded journal and proceedings abstracts as comparable, one may argue that the two are not the same genre given different discourse effects they produce in their readers and writers. Classified by discourse effects, abstracts generally fall into two types: reader-based and writer-based. The reader-based type implies that the quality of abstracts has profounder impacts on its readers (Swales & Feak, 2004). A journal abstract is categorized as the reader-based type, because its quality may affect whether readers will peruse the entire study, while it seems less influential to its writers. Meanwhile, the writer-based type produces more effects on its writers. A conference abstract is characteristic of the writer-based type because its quality will determine whether the writers can earn a ticket to the conference presentation (Swales & Feak, 2000). While this two-type distinction exists, it is not uncommon for abstracts to fall along continuum of the two extremes. For instance, the proceedings abstracts we used seem a hybrid type, producing effects on both writers and readers. It is undeniable that the proceedings abstracts will affect their writers in winning chances for conference presentation. Such proceedings abstracts also affect their readers in deciding whether to peruse the RAs after skimming the abstracts. Thus, the proceedings abstracts are deemed comparable to the journal abstracts.

Move Tagging

As shown in Table 1, a coding scheme (adopted from Swales & Feak, 2004) was employed to tag moves with different communicative purposes in the abstracts. The moves included the purposes of providing background or literature review (B), indicating purposes or tasks of the study (P), describing methods or theories (M), reporting results (R), and making conclusions and evaluations (C).

Table 1. *Coding Scheme of Moves in Abstracts*

Moves/sections	Coding
Background information; literature review	B
Purposes	P
Methods	M
Results	R
Partial or complete conclusions, evaluation (including value)	C

Using the coding scheme, two doctoral students in the field of applied linguistics were recruited to assign move tags to the abstracts. First, the two coders categorized varying communicative purposes in an abstract into potential moves (i.e., a move may spread over a sentence or sentences). The coders then carefully reviewed word choices and other signals in each potential move before finalizing the tag. The first coder move-tagged the entire dataset. The second coder tagged 24 abstracts (12 in each corpus), which accounted for 60 per cent of the two corpora. The inter-rater reliability reached .96. Besides move tagging, another major concern was move structure, which shows how varying moves are sequentially structured to articulate the overall rhetoric of the genre. Table 1 presents the move structure of the corpora. A great majority of the abstracts were found to have four different moves (80 per cent in the EAC, 95 in the SAC), except for four expert abstracts and one student abstract having only three moves.

Target Shell Nouns

There were 39 shell nouns analyzed in the study (see Table 2). The shell nouns were taken from Hinkel's (2004, p. 284) complete classification of 34 "high-prevalent" shell nouns in academic writing (i.e., Aktas & Cortes (2008) adopted Hinkel's classification for shell noun analysis as well). Some of these 34 items did not occur in the two corpora, so they were not listed in Table 2. These items included *fact, manner, event, trend, tendency, class, phase, topic, circumstance, subject,* and *facet.* In addition to Hinkel's classification, there were five additional nouns taken from Schmid's (2000) classification, including *effect, finding, measure, aim,* and *goal*. These five nouns are frequently used for describing features of studies in abstracts (Hancioglu, 2009; Hsieh & Liou, 2008; Pho, 2008). "*Effect*" is a typical expression for study interventions. "*Finding*" is commonly used in stating study outcomes at the general level, compared to the specific level expressed by *result* already incorporated in Hinkel's. "*Measure*" commonly denotes study measurement, and "*aim*" and "*goal*" indicate study purposes. These 39 shell nouns are deemed representative of the rhetoric of abstracts.

Data Analysis

Both concordance and manual analysis were used in identifying shell nouns in the two corpora. The freeware concordancer *Antconc. 3.2* was employed to concordance each potential shell noun. Then, each potential shell noun was manually reviewed.

The manual review on shell noun occurrences was conducted by an operational definition that characterizes a shell noun as capable of creating anaphoric or cataphoric references to encapsulate the preceding or following textual contents into the noun. However, nouns creating exophoric references to real-world or discipline-specific knowledge were excluded from the analysis (i.e., in "the ***Task***-based ***Approach***," *task* and *approach* are excluded). Nouns with such exophoric references contributed less to textual development, compared to the ones with anaphoric or cataphoric references (Schmid, 2000).

To ensure reliability of the shell noun identification, the same two coders who had conducted move tagging worked independently. The first coder analyzed the complete dataset, while the second coder analyzed 60 per cent of the corpora (i.e., 12 abstracts in each corpus). The inter-coder reliability reached .95.

Results and Discussion

Frequency of Shell Nouns in the EAC and the SAC

Table 2 presents the overall distribution of 39 shell nouns in the two corpora. Among the 39 shell nouns, 28 shell nouns occur either in the EAC or the SAC, while 11 shell nouns occur in neither corpus. These 11 shell nouns are not included in Table 2, but noted at the end of Table 2. As the total words in the two corpora differ (3,223 words in the EAC; 4,039 in the SAC), the raw data on shell noun occurrences are normalized to the occurrence of 200 words for cross-corpus comparison. The number 200 is used for normalization because it represents the word-length maximum of abstracts set by four journals in question (out of six), namely, *CALICO Journal, English for Specific Purposes, Modern Language Journal,* and *TESOL Quarterly.*

Table 2. *Overall Distributions of Shell Nouns in the Two Corpora*

Shell nouns Tokens	Expert Abstracts		L2 Student Abstracts	
	raw	per 200 words	raw	per 200 words
result	18	22.36	15	14.85
effect*	11	13.66	9	8.91
change	11	13.66	1	0.99
type	10	12.42	6	5.94
task	9	11.18	5	4.95
finding*	8	9.94	10	9.9
method	6	7.45	1	0.99
measure*	5	6.21	0	0
problem	1	1.24	11	10.89
aim*	3	3.73	1	0.99
experience	3	3.73	1	0.99
goal*	2	2.48	2	1.98
factor	2	2.48	2	1.98
approach	1	1.24	4	3.96
feature	1	1.24	1	0.99

|			
process	1	1.24	1	0.99
reason	1	1.24	1	0.99
issue	1	1.24	2	1.98
category	1	1.24	1	0.99
challenge	1	1.24	0	0
aspect	1	1.24	2	1.98
difficulty	1	1.24	2	1.98
form	1	1.24	0	0
stage	0	0	4	3.96
purpose	0	0	4	3.96
system	0	0	3	2.97
item	0	0	2	1.98
characteristics	0	0	1	0.99
Total	**99**	**122.91**	**92**	**91.08**

Note. 1. The five shell nouns with an asterisk are taken from Schmid's (2000) classification, while the rest are from Hinkel's (2004, p. 284) classification of "high-prevalent" abstract nouns. 2. Shell nouns boldfaced are the high-frequency ones that are further analyzed below.

To compare the distribution of shell nouns across the two corpora, an independent one-tailed *t*-test was conducted on the 28 shell nouns. On average, the EAC used more shell nouns (*M*= 6.14, *SD*=4.37) than the SAC (*M*=4.75, *SD*=2.70). Yet, this difference was not significant (*t* (38) = 1.210, *p*=.117 >.05, *r*=.19).

The results showed that shell noun use in the SAC was not significantly different from that of the EAC, which seems to reflect the rhetorical characteristic of abstracts. Abstracts typically are densely loaded with key propositions extracted from RAs (Hsieh & Liou, 2008; Lau, 2004). In the present study, this rhetorical characteristic seems to prompt both the experts and L2 students to effectively incorporate shell nouns and indexed shell contents for realizing "propositional density" (Flowerdew, 2003). With shell nouns as rhetorical clues, readers can successfully retrieve the designated shell contents spread over, and efficiently comprehend abstracts.

Besides describing the overall distribution, the study further analyzed shell nouns with high-frequency across the two corpora. The EAC served as a benchmark for high-frequency shell nouns by five occurrences as the criteria for inclusion; eight shell nouns were identified. The shell noun *problem* was also included due to its frequent occurrence in the SAC. Within this group of nine shell nouns, the EAC used more high-frequency shell nouns (*M*= 4.9, *SD*=3.81) than the SAC (*M*=2.97, *SD*=2.24). This difference was statistically significant according to the one-tailed *t*-test (*t* (38) = 1.952 >1.645, **p*=.029 < .05, *r*=.30).

Figure 1 displays the cross-corpora difference in the use of the 9 high-frequency shell nouns (*result, effect*, *change, type, task, finding, method, measure,* and *problem*). The use of these high-frequency shell nouns will be detailed by qualitative analysis below.

Figure 1. Occurrences of nine high-frequency shell nouns in the two corpora
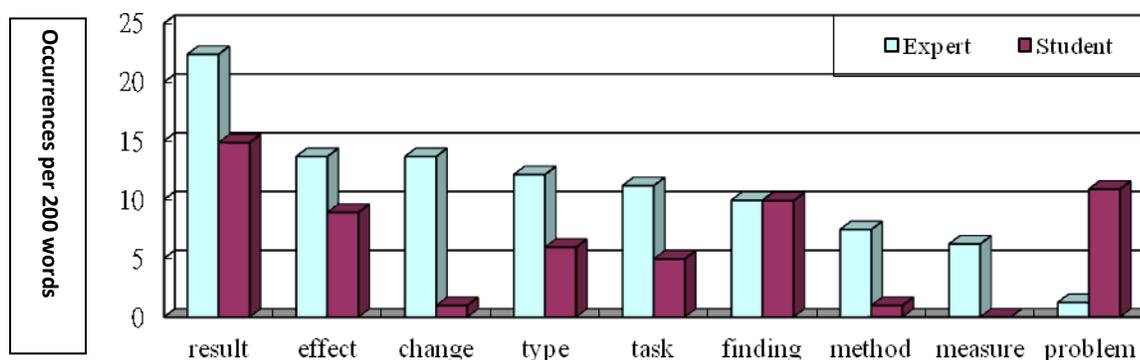
Move-located Distributions of High-Frequency Shell Nouns

In response to the third research question regarding the distribution of high-frequency shell nouns in the two corpora, the occurrence of each shell noun is located by move tags. The complete tally results of move-located shell nouns are in Appendix C. With the tally results, the interplay between shell noun and its move location will be further analyzed by rhetorical functions.

Use of Shell Nouns as Signposts to Move Structures.

Analyzing the move-located shell nouns revealed that the linking functions were employed to signal rhetorical moves linguistically. For instance, in Example 4, the expert writer employed different shell nouns as clear arrows in directing the move structure. In the Purpose move, *effect* characterized design of the study intervention. In the Result move, *result* served as a pivotal joint linking the study intervention with the concrete empirical outcomes. In the Conclusion move, *finding* presented the general empirical evidence. Via the use of the nouns *effect, result,* and *finding* across moves, the causal relations of the study are logically articulated with orderly transition of the propositions, including the study intervention, concrete and general outcomes. The orderly transition of the propositions may be partially attributed to the "linking" function that the expert writer conveys by different shell nouns (Schmid, 2000). Such effective use of shell nouns serves as a model presenting how move structures in abstracts can be signified linguistically.

> (4) //B//...//P// This study examined the **effects** of computer anxiety **on** students' choice of feedback methods and academic performance...//M// …//R// The **results** of multiple regression analysis revealed that the students' choices of feedback method varied... //C//The **findings** reveal the importance of recognizing computer anxiety and creating a learning environment in which students who are highly computer anxious are not disadvantaged. (EAC17)

In terms of using varying shell nouns across moves, the student writers used both *result and finding* in an abstract, although they mapped shell nouns onto moves in a way different from that of the expert writers. In Example 5, a student writer used *finding* to address the primary study outcomes in the Result move, while using *result* to address the general study outcomes in

the Conclusion move. This shell noun use seems inconsistent with Schmid's (2000) causal-relationship framework in which *finding* denotes more abstract outcomes from global perspectives, while *result* denotes more concrete and stative outcomes linked to the casual chain more directly. This inconsistency implies that the student writers may be unaware of this subtle nuance of meaning for *finding* and *result*. They simply used these two shell nouns interchangeably.

> (5) //R// Regarding the **findings** of the current study, the category "compensation" had the highest frequency… //C// Finally, the **results** can enrich our understanding of EFL reading strategies used by vocational high school students in Taiwan and further improve their English proficiency. (SAC 11)

Besides being signposts of move structures, the move-tagged shell nouns were recorded by their recurrences in two or more moves. The recurrence reveals to what extent a shell noun consolidates a given concept throughout. Table 3 presents these recurrences in both corpora. The EAC has 16 recurrences out of 79 shell noun tokens based on 9 high-frequency shell nouns. The SAC shows 9 recurrences out of 58 tokens.

In Table 3, the move-tagged shell nouns can be interpreted by three notes. First, the occurrence of each shell noun is represented by a move tag in an uppercase letter. Taking *result* in Table 3 for example, "EAC1: R-C" indicates that the noun *result* appeared in Result and Conclusion moves in Abstract 1 of the EAC. Second, in the column of move-located distributions, move tag is repeated to show the reiteration of a shell noun in the same move. Taking *type* for example, "EAC14: R-R-R-C" denotes that *type* occurs three times in Result move in Abstract 14 of the EAC. Third, how these move-tagged recurrences interact with moves is highlighted. That is, unmarked moves indicate a shell noun recurring in two continuous moves; underlined moves indicate the recurrence in two distant moves. Boldfaced moves show the recurrence in three or more moves. In this way, the interaction between shell noun recurrences and moves may be easily revealed.

Table 3. *Patterns of High-Frequency Shell Noun Recurrences in Two-moves in the Two Corpora*

Shell nouns/ Two corpora	Move-located distributions of shell nouns in EAC	Move-located distributions of shell nouns in SAC
result	EAC1: R-C EAC 6 :P-R EAC10: R-C EAC18: R-C EAC19:R-C EAC20: P-C	SAC 9: R-C SAC 13: R-C SAC 17: R-C
type	EAC 9: P-M EAC14: R-R-R-C	SAC 14: P-R
effect	EAC4: P-R EAC 9:P-M-R	SAC 5:B-B-P-P
change	EAC 19: P-P-R-R-M-R-R-C	0
task	EAC 4: P-M-R-C EAC10: M-R	SAC 3: P-M-M-M
finding	EAC 8: R-C	SAC 10: R-C
method	EAC 17: P-M-R	0
measure	EAC4: M-R	0
problem	0	SAC 4: P-P-P-R-R-R-R SAC18: P-M
Total	16 counts / 79 (tokens)	9 counts/ 58 (tokens)

Use of Shell Nouns in Two Adjacent Moves.

As shown in Table 3, reentering the same shell noun in two adjoined moves was fairly common in the two corpora. It implies that the student writers were capable of employing shell nouns within two adjacent moves. To detail the recurrent patterns, the analysis below will scrutinize the rhetorical functions that a shell noun performs in two adjoined moves, in two distant moves, and in more than two moves.

Example 6 illustrates how the noun *task* is repeated in the Purpose and Method moves to conceptualize *task* as the key design in a student's abstract. In the Purpose move, *task* is introduced as new information in the term *Task*-Based Approach. As the word is a discipline-specific term, the realization of *task* rests less on the surrounding discourse than on background knowledge (exophoric reference). Realizing the *task* largely draws upon readers' decisions on whether to utilize their background knowledge (Aktas & Cortes, 2008); it is not categorized as a shell noun.

In the Purpose move, another *task* is treated as given information, acting as a modifier in introducing a new concept: participants' course of "*task* engagement and completion." However, the meaning of *task* is yet to be realized. In the Method move, *task* is finally realized with varying referents, "a pre-writing *task*, a series of communicative and collaborative *tasks*, and a post-writing *task*." The nature of *task* is elaborated as L2 students' performance of narrative writing and awareness of audience in the following text. "A pre-writing task" is specified as a measure for "each subject's current level of performance on narrative." "A series of communicative and collaborative *tasks*" is specified as "wherein the writing audience was contextually specified to aid them in the completion of a narrative writing **task** through multiple drafts." Finally, "a post-writing *task*" refers to the evaluation of the approach effect; that is whether audience awareness can improve L2 students' performance of narrative writing. Accordingly, *task* is clearly conceptualized in the abstract.

> (6) //P// The present study attempts to investigate whether.. the Task-based Approach to teaching writing could be conducive to cultivating EFL undergraduates' awareness of the intended audience in their course of **task** engagement and completion. //M//..a pre-writing **task** and pre-study questionnaire were administered to gain insights into each subject's current level of performance on narrative and their conceptions regarding audience awareness of writing.. they were involved in a series of communicative and collaborative **tasks** wherein the writing audience was contextually specified to aid them in the completion of a narrative writing **task** through multiple drafts. What ensued were a post-writing **task** and post-study questionnaire to examine the effects of this approach. (SAC 3)

Use of Shell Nouns in Two Discontinuous Moves.

Besides the shell noun recurrence in two adjoined moves, the recurrence in two discontinuous moves was also identified in both corpora. Table 5 reports three incidences in the EAC (4, 6, and 20) and two incidences in the SAC (4, 14). In Example 7, the student writer uses *problem* three times in the Purpose move. The first *problem* is characterized as a feature of

incoherence in EFL learners' essays, with its shell contents spreading over the preceding and following discourse at the in-clause level. The second *problem* in the Purpose move is characterized by a paraphrase of the first characterization, with its shell contents scattering in both a pre-modification possessive case and a post-modification prepositional phrase. The third *problem* is attached to a pre-modification "incoherence," which coins a noun phrase (i.e., *the incoherence problem*) to encapsulate the feature of interest in the study. In the Result move, the noun phrase recurs twice to consolidate this feature of interest, and *problem* recurs in a form similar to the noun phrase, such as "the *problem",* or "the participant's incoherent *problem."* The student writer seems to have developed skills of reiterating a shell noun to emphasize this feature of interest, maintaining lexical cohesion of the abstract.

> (7) //P//…Recently, incoherence had been found as one of the major **problems** in Taiwanese EFL learners' written products (Chang, 1998..). Accordingly, to understand the less experienced EFL writers' **problems** in achieving coherence, the study intended to explore their knowledge of coherence and their self-awareness about incoherence **problems** through analyzing their written products…//M//…//R// The findings of the study were as follows: (1)..(2) most participants did not have sufficient self awareness toward the incoherence **problems** in their written products; and (3) the participants would not be able to adopt effective strategies to deal with the incoherence **problems** if they were not aware of the **problems.** The study also uncovered that laziness for revising was a cause of the participants' incoherence **problems.** (SAC 4)

Although the student writers seemingly have demonstrated their ability to repeat a shell noun in two adjoined or distant moves for maintaining lexical cohesion, there are differences in the shell noun recurrence in the two corpora. Particularly, the difference was found in the recurrence across three or four moves. The EAC showed four incidences of the recurrence out of 20 abstracts, accounting for 20 per cent of the corpus. The SAC had zero incidences. This difference implies that student writers may not be fully aware of, or are less confident using shell nouns to consolidate concepts of interest.

Use of Shell Nouns across Three or Four Moves.

In Example 8, the expert writer characterizes *task* as the main design of the study and reiterates *task* in the Background-Method-Result-Conclusion moves to emphasize its conceptual importance. In the Background move, the nature of *task* is first characterized by the pre-modification (i.e., oral narrative *tasks*). In the Method and Result moves, *task* serves as old information, with its meaning retrievable from the Background move. *Task* here functions as an adjective in introducing a new concept (i.e., measures of *task* performance), as can be seen by *task* used in singular form in these two moves, yet in plural form in the Background and Conclusion moves. In the Conclusion move, *task* recurs alongside a pre-modification (i.e., narrative *tasks*). Although this *task* recurrence only includes part of the pre-modification used in the Background move, readers can easily recover the complete pre-modification by context. Readers can reinforce their perception of the study design construed in the preceding discourse. With the four recurrences of *task* in the expert abstract, readers' understanding of the study design can be easily enhanced when reading along.

(8) //B//The aim of this article is to investigate the effect of creativity on performance in oral narrative **tasks**. //M//…We examined the relationships between 3 aspects of creativity— originality…—and different measures of **task** performance. //R// The findings suggest that the 3 components of creativity have a differential effect on the measures of **task** performance…//C// The magnitude of the correlations indicates that creativity affects participants' output in narrative **tasks** only moderately. (EAC 4)

Similarly, in Example 9, the expert writer uses c*hange* in the Purpose-Result-Method-Result-Conclusion moves. C*hange* is used to encapsulate the participants' developments in four areas of English ability, namely, English proficiency, phonological awareness, oral proficiency, and vocabulary. In the Purpose move, *change* is first characterized as developments in English proficiency and phonological awareness, with its shell contents in a post-modifying prepositional phrase. In the first Result move, *change* is characterized as a development in the third area of English ability (oral English proficiency), with its shell contents in a post-modifying prepositional phrase. Another *change* recurs with no post-modifiers, yet the latter *change* can be easily realized by anaphorically referring to the *change* characterization in the preceding discourse of the same sentence. In the second Method move, *change* is characterized by another English ability (vocabulary), alongside phonological awareness.

(9) //P//…A second aim was to determine the extent to which **change** in English proficiency over the course of the intervention could be attributed to **change** in phonological awareness. //M//.. //R//Although both groups showed significant **change** in oral English proficiency over pretest scores, an analysis of covariance, covarying.., indicated the phonological awareness group showed greater **change** than did the story-reading group. //M//Multiple regression analyses were conducted with measures of sound discrimination, short-term memory, and **change** in vocabulary and phonological awareness in the predictive model. //R//Results indicated that **changes** in phonological awareness variables were the only significant predictors of **change** in oral English proficiency. //C//…Thus, a balanced reading program for limited English proficient, Spanish-speaking kindergarten children… should also include phonological awareness instruction for the added benefit of greater **change** in oral English proficiency. (EAC 19)

After *change* is clearly characterized as the four areas of English ability, the expert writer reiterates *change* in its full noun phrases (*change* alongside the complete post-modifiers) to elucidate the interactions among these four English abilities that constitute the prime study concern. The study primarily is concerned with how participants' phonological awareness affects oral English proficiency. To address this prime concern, *change* is repeated several times introducing two English abilities (i.e., *change* in phonological awareness; *change* in oral English proficiency). Particularly, *change* pertaining to phonological awareness is reentered in both the second Method and the second Result moves. With its first occurrence in the Purpose move, three recurrences are identified in total.

Change relative to oral English ability is entered in the first and second Result moves, and in the Conclusion moves, totaling four recurrences of such use. While *change* relative to oral English ability is reiterated four times in the abstract, it is not realized directly. C*hange* is

realized as a developmental process of oral English proficiency by implying an increase in the test scores at the across-clause level. In its first occurrence in the Result move, a pre-modifying adjective and a post-modifying prepositional phrase is attached to *change*, shown in "significant **change** in oral English proficiency over pretest scores." However, in this instance, *change* is not described explicitly as an increase or a decline in the test scores, although increase, rather than decline, after language instruction is expected by most readers in the field of L2 learning. This expectation is finally confirmed in the Conclusion move of the abstract. The Conclusion move suggests that helping limited English-proficient kindergarteners is feasible by including phonological-awareness instruction in reading programs. Phonological-awareness instruction can bring "the added benefit of greater **change** in oral English proficiency." By the noun phrase "the added benefit," *change* is finally realized as a beneficial process of language development. This realization suggests that *change* refers to the test-score increase in oral English proficiency.

Table 4 reports a summary of cross-move recurrence of a shell noun in both corpora. Both the L2 student and expert writers reiterated a shell noun with one or various realizations in two adjoined and discontinuous moves. Moreover, the expert writers were more adept at persistently reentering a shell noun with an identical realization across three or four moves in abstracts. Apparently, when a shell noun with an identical realization recurs in more moves, it consolidates an established concept throughout.

Table 4. *Summary of the Cross-move Recurrence of a Shell Noun in the Two Corpora*

Cross-move recurrence of a shell noun	The EAC	The SAC
Two-adjoined moves	✓	✓ Example 6 (SAC 3)
Two-discontinuous moves	✓	✓ Example 7 (SAC 4)
Three or four moves	✓ Example 8 (EAC 4) Example 9 (EAC 19)	✘

Most Important Differences across the Corpora.

Given the fact that abstracts are usually subject to strict word-constraints, there seems a trade-off between style and precision on the word choices of the expert writers. Rhetorically, the expert writers choose to "[s]acrifice stylistic elegance for clarity and conspicuousness" (Schmid, 2000, p. 359). This rhetorical choice seemingly consolidates a key concept in the expert abstracts, reminds readers of the importance of this concept throughout, and avoids ambiguity of the expressions. The L2 student writers also take this rhetorical choice, yet they only reiterate a concept-laden shell noun in two moves, rather than three or four moves. Such reiteration the student writers employ may be less complete in consolidating a key concept, which in turn achieves less lexical cohesion. A similar conclusion was reached by Aktas and Cortes (2008).

Conclusion

The study describes distribution and rhetorical functions of shell nouns in expert and L2 student abstracts of research articles (RA) in applied linguistics. The study tagged each shell noun by a move of communicative purpose to show its rhetorical functions against the backdrop of move structures. Results indicate that the expert writers more frequently used different shell nouns (i.e., *effect, result,* and *finding*) to signal moves, compared to the L2 students. The expert writers tended to reenter a shell noun laden with key concepts across three or more moves, while the student writers did so only across two moves. This difference implies that student writers may not be fully aware of, or are less confident of, using shell nouns to signal moves or consolidate concepts of interest. However, the findings need to be interpreted with caution given the small size of the corpora. To cross-validate the findings, replication targeting different disciplines in larger corpora will be needed. Replication can also target each section of RAs (i.e., Introduction-Method-Result-Discussion).

On the basis of our preliminary results, equipping L2 students with skills in using shell nouns in move structures in abstracts warrants instructional efforts at both global and local levels. At the global level, L2 students' awareness of move structures can be raised by explicitly introducing type and structure of moves conventional in their fields (Hancioglu, 2009; Lau, 2004). Against the backdrop of move structures, L2 students may learn to use shell nouns as cohesive devices at the local level. They may start with reading expert abstracts to recognize rhetorical functions of shell nouns for signifying move structures, consolidating established concepts, and advancing textual development.

Aware of such discipline-specific use of shell nouns, L2 students may learn to produce shell nouns in abstracts. They may convey their communicative purposes more persuasively by organizing propositions and constructing arguments according to their disciplinary norms. Hence, they may become more capable of voicing their opinions in abstract practices and eventually gain a membership in their disciplinary communities to publish opinions legitimately (Swales, 1990).

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Appendix A: The list of articles included in the Expert Abstract Corpus

1. Using instructional video to teach culture to beginning foreign language students. CALICO Journal 17(3), 2000.

2. Personality type, tolerance of ambiguity, and vocabulary retention in CALL. CALICO Journal, 15(1-3), 1998.

3. Evaluating the effectiveness of meta-cognitive strategy training for reading research articles in an ESP context. English for Specific Purposes 22(4), 2003.

4. Creativity and narrative task performance: An exploratory study. Language Learning 54(2), 2004.

5. Avoidance of phrasal verbs: The case of Chinese learners of English. Language Learning, 54(2), 2004.

6. Student and instructor beliefs and attitudes about target language use, first language use, and anxiety: Report of a questionnaire study. The Modern Language Journal, 87(3), 2003.

7. Computerized task-based exposure, explicitness, type of feedback, and Spanish L2 development. The Modern Language Journal, 88(2), 2004.

8. The effects of teaching spoken Arabic on students' attitudes and motivation in Israel. The Modern Language Journal, 88(2), 2004.

9. The effects of context of learning in the use of communication strategies by learners of Spanish as a second language. Studies in Second Language Acquisition 26(2), 2004.

10. Computer-mediated negotiated interaction and lexical acquisition. Studies in Second Language Acquisition 26(3), 2004.

11. L2 vocabulary learning from context: Strategies, knowledge sources, and their relationship with success in L2 lexical inferencing. TESOL Quarterly 37(4), 2003.

12. Negotiating participation and identity in second language academic communities. TESOL Quarterly 38(4), 2004.

13. The effects of keyword captions to authentic French video on learner comprehension. CALICO Journal 15(1-3), 1998.

14. On Abstracts: From rhetorical structure to thematic organization. English for Specific Purposes 23(3), 2004.

15. A multiple-data analysis of the 3.5-year development of EFL student writers, Language Learning 54(3), 2004.

16. Syntactic transfer: Evidence from the interlanguage of Hong Kong Chinese ESL learners. The Modern Language Journal 88(1), 2004.

17. Computer anxiety and students' preferred feedback methods in EFL writing. The Modern Language Journal 88(3), 2004.

18. Differential effects of prompts and recasts in form-focused instruction. Studies in Second Language Acquisition 26(3), 2004.

19. The effects of a phonological awareness intervention on the oral English proficiency of Spanish-speaking kindergarten children. TESOL Quarterly 38(1), 2004.

20. Effects of comic strips on L2 learners' reading comprehension. TESOL Quarterly 38(2), 2004.

Appendix B: The list of articles included in the L2 Student Abstract Corpus

Selected papers from the 16th (2007) International symposium on English Teaching. Disks 1-2, Taipei: Crane.

1. FG 02: Evaluating learner-centeredness of online courseware in Taiwan

2. FG 03: The repetition of collocations in EFL textbooks: A corpus study

3. FP 04: Developing audience awareness of narrative writing through the task-based approach

4. FP 06: Less experienced EFL writers' knowledge and self-awareness of coherence in English Writing

5. FP 11: Effects of annotations and story-grammar instruction on foreign language learning.

6. FP 16: Effects of exposure frequency and contextual situations of a word on incidental

   learning of vocabulary.

7. FP 21: A corpus-based approach to L2 learner language.

8. FP 205: The impact of youtube on teaching and assessing English speeches

9. FP 208: English teachers' perspectives on use of speech recognition technology

10. FP 210: Voicing Learners' Problems in Technical Writing: Analysis of Science Majors.

11. FP 211:A study of EFL reading strategies used by vocational high school students in Taiwan

12. FP 221:The developments of college learners' academic vocabulary in writing: Appropriateness and accuracy.

Selected papers from the 17th (2008) International symposium on English Teaching. Disk 1, Taipei: Crane.

13. FF02: The use of English causative verbs in EFL learners' writing.

14. FP07: Reading instructional strategies in a junior high school EFL classroom.

15. FP29: On the were-subjunctive in written and spoken English.

16. FP15: EFL students' acquisition of English verbal constructions.

17. FP19: How can writing be better instructed through students' eyes? - A multi-dimensional investigation

18. FS02: Coherence in Chinese students' English writing: An initiative to a learners' corpus

19. FP08: Gifted students' vocabulary learning strategies.

20. FP04: A study on EFL teachers' use of supplementary teaching materials.

Appendix C: Move-located shell nouns in both corpora.

Abstracts in the two corpora	Move tags: Background-Purpose-Method-Result-Conclusion (Occurrences of high-frequency shell nouns)	
Expert Abstract Corpus		**Example**
EAC1	P-M-R(result/type)-C(result)	
EAC2	B-P(effect*2)-R-C(finding)	
EAC3	B-P-M-C(method)	
EAC4	P(effect/task)-M(task/measure)-R(effect/finding/task/measure)-C(task)	**8**
EAC5	P-M-R(result/type*2)-C(finding)	
EAC6	P(result)-M-P-M-R(result)-C	
EAC7	P(task)-M-C	
EAC8	P(change*2)-M-R(finding)-C(finding)	
EAC9	P(effect/type)-M(effect/problem/type/measure)-R(effect/result)-C(finding)	
EAC10	P-M(task)-R(result/task)-C(result)	
EAC11	P-M-R-C(finding)	
EAC12	P-M-R	

EAC13	B-P(method)-M-R(result)-C(effect)	
EAC14	P-R(type*3)-C(method/type)	
EAC15	B(change)-M(effect)-R(result)	
EAC16	P-M(type)-R(result)-C	
EAC17	B-P(effect/method)-M(method)-R(method/result)-C(finding)	**4**
EAC18	P(effect)-M-R(result)-C(result/task*2)	
EAC19	P(change*2)-M(change/measure*2)-R(change*4/result)- C(change/result)	**9**
EAC20	P(result)-M-R-C(result)	
Student Abstract Corpus		**Example** **e**
SAC1	B-P-M-R(result)	
SAC2	B-P-M-R(result)-C	
SAC3	P(task)-M(effect/task*4)-R-C	**6**
SAC4	P(problem*3)-M-R(finding/problem*4)-C(finding)	**7**
SAC5	B(effect*2)-P(effect*2)-M(type)-R(result)	
SAC6	P(effect)-M-R(finding)-C	
SAC7	B-P-M-R-C(result)	
SAC8	P-M-R(effect)-C	
SAC9	B-P-M-R(problem/result)-C(result)	
SAC10	P-M-R(finding)-C(finding)	
SAC11	M-R(finding)-C(result)	**5**
SAC12	B-P(change)-M(type)-R(result)-C(finding)	
SAC13	B-P(type)-M-R(result)-C(result)	
SAC14	P(type)-M(method)-R(finding/type)-C	
SAC15	P-M-R-C	

SAC16	B-P-M-R(finding)-C	
SAC17	B(problem)-P-M-R(result)-C(result)	
SAC18	P(problem)-M(problem)-R(result)-C(effect)	
SAC19	B-P-M-R(effect/result)-C(result)	
SAC20	B-M-R(finding/type)-C	

NOTE. 1. Shell nouns are put in parentheses and attached to varying move tags in each abstract. 2.*2 or *3 indicates that a shell noun occurs 2 or 3 times in the same move.