

## EXPLORING NOMINALIZATION IN THE INTRODUCTION AND METHOD SECTIONS OF APPLIED LINGUISTICS RESEARCH ARTICLES: A QUALITATIVE APPROACH

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**Abstract:** *One of the most distinctive linguistic characteristics of academic writing is the high frequency of nominalized structures. The present study explores how nominalization was used as an approach to making knowledge claims in applied linguistics research articles. Data comprised the introduction and method sections of 16 empirical papers featuring the IMRD (Introduction, Method, Result, Discussion) format, drawn from the most recent issues of 10 journals, with a total of 40,122 running words, from which 3,150 instances of nominalization were drawn. Analyzing these nominalized structures in the context of their local spans revealed 15 patterns, with the preference for some of the patterns varying across the introduction and method sections of these articles. Results showed a higher concentration of nominalization in the introductions. The study also identified the more prevalent nominal expressions in each section. The fact that each of these sections serves different purposes appears to justify the use of a contrasting range of nominal expressions. Based on the findings of this study, some pedagogical implications for academic writing and reading, ESP/EAP courses, and researchers are proposed.*

**Keywords:** *Academic Writing, Introduction, Method, Nominalization, Research Articles, English for Academic Purposes*

### 1. Introduction

Research articles are recognized as one of the most valuable scientific genres and a key medium for generation and distribution of new knowledge in the academic community. Research articles (RAs) represent a valuable resource for genre studies as evidenced by their continued use as data for investigating the writing conventions, social practices and values of a discipline and research community (Bondi and Hyland 2006). They demand meticulous academic requirements in terms of both textual organization and linguistic choices (Lim 2006). Within the framework suggested by Swales (1990) for the organization of RAs, in terms of Introduction, Method, Result, and Discussion (IMRD), introductions and methods sections constitute two major components. The fact that in the introduction section “writers of RAs compete for the acceptance and recognition” sheds light on the importance of this section within the academic communities in which they operate (Swales and Feak 1994:174). In their introductions, writers contextualize their own research by situating it within a discipline and in relation to a body of theory or research, using this as a platform for the construction of an argument for their own study (Hood

2004). In the method section, the research writer describes their approach to the study being reported – the methodology, materials, and procedures - which is seen as an important move in the argument, since it makes it possible for other researchers to replicate the study (Swales and Feak 1994:165). The importance of the method section is due to its function as the connector of “a particular research method with previous research procedures”, or “the section itself with other key sections, especially the Introduction and Results” (Lim 2006:283). Through the method section, the writer will be able “to convince the readership of the validity of the means employed to obtain findings” (Lim 2006:283).

Motivated by the need to become aware of textual organization of RAs, the purpose of the present study was to investigate how knowledge is claimed in the introduction and method sections of RAs in applied linguistics by incorporating nominal patterns. The findings of this study showed that nominal expressions in the introduction and method sections of Applied Linguistics RAs create a pattern in their co-text, and the use of nominal expressions can identify each section and indicate the way that knowledge is claimed in each section. The results of this study are likely to enable researchers as well as novices to gain insights into how nominal expressions correspond to the macro-structure organization of each section.

Over the last decades, a large number of studies have been conducted in the realm of academic writing. A number of these studies are devoted to the analysis of academic writing from the perspective of systemic functional linguistics (SFL). Some of these focus on microstructural aspects such as ideational grammatical metaphor types and functions; nominalization types, frequency, and density of this genre (e.g. Davtgari Asl and Shahab 2015; Jalilifar, Alipour and Parsa 2014; Kazemian, Behnam and Ghafoori 2013; Sayfour 2010). The relevance of the SFL approach for pedagogical studies is related to its “ functional-semantic approach to language which explores both how people use language in different contexts, and how language is structured for use as a semiotic system” (Egins 2004:21). It interprets language “as interrelated sets of options for making meanings” (Halliday 1994:15).

From the perspective of SFL, the notion of grammatical metaphor provides valuable insights into areas of practical application, such as textual studies, questions of language development and literacy, and the processes of semiosis (Ravelli 2003). According to Ravelli (2003:43), one central reason for being interested in the processes of grammatical metaphor is its relation to comprehension of written texts, and thus to processes of literacy. Halliday and Martin (2005:87) define grammatical metaphor as the “substitution of one grammatical class, or one grammatical structure by another”. Grammatical metaphor “adds a further dimension of depth to semantic construal of experience” (Halliday and Matthiessen 1999:291). It involves a type of metaphorical movement from a process as clause to a process as noun phrase (Taverniers 2004).

One of the most distinctive linguistic characteristics of academic writing is the high frequency of nominalized structures (Biber and Gray 2013). Nominalization, as a repository of creating grammatical metaphor (Halliday 1994), is connected “with the texts that require language economy and high information density” (Susinskiene 2010:142). Its critical role is to construct knowledge, organize text, enable evaluation, and facilitate information flow (Martin 2008). Maintaining cohesion in academic texts, revealing writer stance, and contributing to an impersonal academic tone are among the functions of nominalizations (Baratta 2010). By nominalizing, verbs and adjectives are construed metaphorically as nouns (Halliday 1994), giving any phenomenon of experience “the maximum potential for semantic elaboration” (Halliday and Matthiessen 1999:265).

There have been numerous investigations in recent years into the functions, frequency and use of nominalization in oral and written scientific discourse. A review of recent research suggests that most studies have focused on written texts, including verb-based nominalizations in 1, 892 pages of history texts (Susinskiene 2009) or in political discourse (Sarnackaitė 2011), in undergraduate writing (Baratta 2010), in discussion sections of medical English papers (Wenyan 2012), in IELTS writing test papers (To, Le and Le 2013), in Applied Linguistics and Biology textbooks (Jalilifar et al. 2014), in an English applied linguistics textbook and its corresponding Persian translation (Shirali 2014), and in the abstract section of English medical articles (Mahbudi, Mahbudi and Amalsaleh 2014).

The studies listed above suggest that the tendency of text analysts is to study the crucial role played by nominalization in building the logical structure and the organization of scientific discourse (Bloor and Bloor 2004). Nevertheless, the relationships between genre specificity, academic text organization, and nominalization have yet to be adequately empirically examined. There has been little work into how nominalization is realized in the different sections of RAs that serve different purposes, leading to different linguistic and rhetorical structures in these sections (Swales and Feak 1994). For instance, the method section is said to have an expository character (Martinez 2003), whereas the introduction section is claimed to be argumentative in nature (Hood 2004). Given the potential implications for the study of academic writing, therefore, it is unfortunate that we know very little about the distribution and the patterns of nominalization use in these sections, and this calls for further research on nominalized expressions in RAs, the findings of which could be fed into research writing courses.

## 2. Method

### 3.1 The analytical framework

The current study followed a qualitative approach to analysis. The method of analysis was top-down, applying the models presented by Halliday (1998) and Halliday and Matthiessen (1999). They have classified grammatical metaphor into 13 types of which four types are categorized as nominalization. Among the types of grammatical metaphor, the shifts from quality (e.g. unstable => instability; quick(ly) => speed); process (e.g. transform => transformation; will/going to => prospect; can/could => possibility, potential, try to => attempt; want to => desire); circumstance, relator, and prepositional phrase to an entity (e.g. with => accompaniment; to => destination; (dust is) on the surface => surface dust ), conjunction (e.g. so => cause, proof) and a shift from noun to noun modifier were regarded as nominalization in this study.

What we are labeling ‘nominalization’ in this article primarily applies to the Thing or Head noun in the nominal group. The nominal group expands lexically by modification; it encompasses a functional structure: “Deictic–Numerative–Epithet–Classifier–Thing–Qualifier” (Halliday 1985:279). In nominal groups, the Deictic function is realized by determiners, for example demonstratives (e.g. *this*, *the*), by possessive nouns or pronouns (e.g. *Sony’s* in *Sony’s latest model*; *your* in *your home*), and by non-specific items such as the indefinite article (e.g. *a/an*, *some*, *each*, *neither*, *all*). Numeratives can be realized by numerals such as two or second or by expressions such as *many*, *several*, *few*, and *lots of*. The function of a Classifier is to identify a subcategory of the modified item (Bloor and Bloor 2004). For example, in *bus station* the Classifier *bus* puts the item *station* in a subclass of stations, distinguishing it from *train station*, or more broadly from such things as *gas station*. The function of Epithet is to define the

scope of the term it modifies, but does not identify a subcategory of it. For example, in *noisy station*, *noisy* indicates features of the station that do not put it into a subset of types of station. Thing functions as the Head of the nominal group and can be modified. The sixth function in the nominal group is *Qualifier*, the experiential label for the Postmodifier. Very frequently in English, the Qualifier function is realized as a prepositional phrase.

### 3.2 Data

For the purposes of this study a list of 60 high-impact ISI (Institute for Scientific Information) journals (with the impact factor above 0.7) were distributed among applied linguistics experts in Shahid Chamran University of Ahvaz, and they were asked to select 15 journals to which they might choose to submit their manuscripts. Ten journals, having being selected with the highest frequency, were then chosen for the study (see Table 1 below). The most recent issue of each journal was chosen, altogether forming a corpus of 62 articles (among which 53 articles reported empirical investigations), 36 book reviews, 7 reviews, 4 forum samples, 9 book notes, and 6 commentaries. As the analysis was focusing on empirical RAs featuring the IMRD format, only the introduction and method sections of the RAs were selected and analyzed for the study. In separating the two sections for analysis, we found that some articles followed variations of the IMRD (e.g., ILMRDC) structure. To guarantee the consistency of selection, all the sections prior to Method were regarded as Introduction. Likewise, the sections that fell between Introduction and Results or an alternative - such as Findings, Data Analysis, or Analysis – were regarded as Method sections. The data selection and analysis were simultaneous and continued until no more new patterns emerged. The articles were first numbered from 1 to 53; the sections considered as introduction or method were then coded as I and M respectively.

Name of Journals	The Impact Factor Value	The Number of Empirical Papers
Applied Linguistics	1.5	3
Discourse and Society	1.4	5
English for Specific Purposes	1.14	8
Journal of English for Academic Purposes	0.97	8
Journal of Pragmatics	0.8	7
Journal of Second Language Writing	1.13	5
Language in Society	0.92	1
Modern Language Journal	1.11	7
Second Language Research	0.7	5
Studies in Second Language Acquisition	1.8	4

Table 1. Selected ISI Journals and the Number of Empirical Papers

### 3.3 Procedure

Analysis began by careful reading of the coded texts several times. They were then scrutinized in order to identify tokens of nominalized expressions used by the authors. Coding reliability was guaranteed by a second analysis after about a two-month interval, and any

discrepancy in distinguishing nominalizations was recorded and resolved. To calculate the amount of intra-coder reliability, Cohen's Kappa coefficient, a statistic suited for nominal categories, was employed, and the obtained index was 0.91. Kappa values can range from -1 to +1; a value of 1 represents perfect agreement, and a value between 0.80 and 1 implies very good agreement.

Furthermore, a portion of the data was selected and analyzed by the second researcher of this study to check the accuracy of recognition of nominal expressions and help maximize the dependability of the analyses and the findings. Cohen's Kappa coefficient indicated an index of 0.80. The rest of the data was analyzed by the main researcher of the study and then, in all cases where there were ambiguities in identification of nominalized structures, we negotiated the differences until complete consensus was reached. The corpus finally investigated for this study comprised the introduction and method sections of 16 articles totaling 40122 words.

Determining nominalization depends on discerning the congruent rewording for all of the extracted grammatical metaphors. However, sometimes the metaphor cannot be unpacked to yield a more plausibly congruent form, and this distinguishes a grammatical metaphor from a technical term (Halliday and Matthiessen 1999). When a wording becomes technicalized, a new meaning is construed which has full semantic freedom (Halliday and Matthiessen 1999:286). Almost all technical terms appear as grammatical metaphors which can no longer be unpacked. The following examples extracted from the articles illustrate these kinds of technical nominalisations:

[1]: ... is analysed using the methodology of *conversation analysis* (CA) ... (6-I)

[2]: ... calculate both the average and the *standard deviation* values. (27-M)

[3]: ... performance changes regarding learners' use of *incomplete endings* ... (34-M)

The above italicized utterances were not regarded as nominalizations, since they are fixed expressions that refer to phenomena which cannot be changed. For instance, in example 1, *conversation analysis* refers a set of methods for studying social interactions. In examples 2 and 3, *deviation* and *endings* do not refer to the process of deviating and ending something and cannot be replaced by a congruent form.

In addition to technical terms, a host of other nouns, known as 'agent' in linguistics (e.g., actors, analyst, claimants, consumers, critics, editor, employees, expert, hearer, indicator, instructors, interlocutor, interviewer, participants, , proponents, rater, researcher, respondents, reviewers, scholars, sociolinguists, etc), were not regarded as nominalized structures since, semantically, they do not crystallize phenomena into abstract, non-agentive entities the way nominalizations do and they could not be realized as incongruent forms of words, hence not "unpackable".

In the following stage, the texts were examined to decipher the patterns in which the nominalized structures were used. Assigning nominalized expressions to appropriate patterns was not a straightforward process and involved complications. For instance, note the following utterance extracted from the corpus:

[4]: ... expresses the author's **incredulity** at the critics' **inability** to follow the author's **argument** ... (46-M)

It was not feasible to assign the above example into one pattern; the sentence was thus described using a number of patterns. For example, three patterns were detected in example 4:

[the author's *incredulity* at the critics' *inability*] (Premodifier) + Nominalization + Preposition + (Premodifier) + Nominalization;  
 [the critics' *inability* to follow the author's argument] (Premodifier) + Nominalization + Infinitive; and  
 [the author's *argument*] Deictic + Nominalization.

Here it was not wise to merge these patterns into one, e.g. (Premodifier) + Nominalization + Preposition + (Premodifier) + Nominalization + Infinitive, since this pattern did not show any trend utilized by writers. The analysis revealed many other such complex phrases embedded in one another.

The function of Premodifier can be realized by various word classes, most frequently by determiners, numerals, adjectives, and nouns that function as classifier (Bloor & Bloor, 2004, p. 139).

A further complication was that in many instances nominalizations were connected through conjunctions (*and, or*), as noted in the following examples:

[5]: ... participants' trouble in **speaking, hearing** or **understanding** ongoing **speech**. (3-M)

[6]: ... early work has focused on a **selection** of strategies and features as well as important **descriptions** of some pragmatic phenomena ... (34-I)

Three nominalizations in example 5 were identified under one pattern (Preposition + Nominalization + Noun Phrase):

[participants' trouble in *speaking* ongoing speech],

[participants' trouble in *hearing* ongoing speech], and

[participants' trouble in *understanding* ongoing speech].

In example 6, *descriptions* together with its surrounding words make recognition of the pattern for this nominalization a little ambiguous. To put it another way, the related pattern for the phrase [*important **descriptions** of some pragmatic phenomena*] would be Premodifier + Nominalization + Prepositional Phrase, while considering the phrase as [*has focused on important **descriptions** of some pragmatic phenomena*] changes the pattern into Preposition + (Premodifier) + Nominalization + Prepositional Phrase as Qualifier.

### 3. Nominalization Patterns

This section presents the patterns in which nominal expressions appeared in introduction and method sections of applied linguistics RAs. A list of the most prevalent nominal expressions in each section is also provided. The following table depicts the patterns and their order in terms of their frequency of occurrence in the two sections as a basis for comparison. The most frequent and functional ones are then explained and illustrated by examples.

Order of Patterns in Introduction	Patterns	Order of Patterns in Method
1	(Premodifier) + Nominalization + Preposition + (Premodifier) + Nominalization + Preposition + (Premodifier) + (Nominalization)	4
2	Preposition + (Premodifier) + Nominalization	1
3	Premodifier + Nominalization + Prepositional Phrase	2
4	(Deictic) + (Epithet) + Nominalization	3
5	(Deictic) + Classifier + Nominalization	6

6	Preposition + (Premodifier) + Nominalization + Prepositional Phrase (Qualifier)	5
7	Nominalization + Noun Phrase	7
8	Nominalization + Nominalization	11
9	(Premodifier) + Nominalization + Prepositional Phrase (Adjunct)	8
10	Numerative + Nominalization	12
11	Nominalization + Relative Clause	10
12	Nominalization as Classifier + Noun	9
13	(Premodifier) + Nominalization + Participle Clause	13
14	(Premodifier) + Nominalization + Infinitive	14
15	Nominalization + Adjective as Postmodifier	15

Table 2. The Nominalization Patterns in Introduction and Method Sections

### 3.1 Analysis and discussion

As can be seen in the Table 2 above, fifteen patterns were deciphered of which the six most frequent and functional ones are introduced below. Scientific writing is characterized by the way in which meanings are organized and worded. The order of the words in the nominal group dominates the construction of meaning; thus, the nominal expressions obtained from the analysis were examined in their context of use to extract the patterns realized in introduction and method sections.

#### 1. (Premodifier) + Nominalization + Preposition + (Premodifier) + Nominalization + Preposition + (Premodifier) + (Nominalization)

This pattern, illustrating a nominal group complex, or a prepositional phrase complex where the first nominal is preceded by a preposition, was the most complex in the corpus in the introduction sections. The pattern demonstrates that “often a prepositional phrase postmodifying a Head noun in a nominal group contains within itself another prepositional phrase postmodifying a Head noun” (Bloor and Bloor 2004:145). In fact, postmodifiers themselves contain a nominalization which allows for further modification. This recursive property of the modifying relation represents the nominal group as a regressive bracketing and elucidates its elasticity which enables academic writers to produce long and complex nominal group strings (Halliday 1994). These long nominalized structures, characterizing expansion of the lexicogrammar of a text, generate a high lexical density which is associated with the degree of text formality (Ure 1977 as cited in Wenyan 2012). Such cases in which more than one item in a clause is a metaphorical realization, i.e., the meaning of more than one item is construed in a different way by means of a different grammatical construction, are referred to as syntagmatic plurality, in which one occurrence of grammatical metaphor is syntagmatically dependent on another process of metaphor (Ravelli 1999 as cited in Taverniers 2003). Accordingly, academic writing relies heavily on phrases, embedded in noun phrases, rather than clauses to add information (Biber and Gray 2010).

Table 2 above also reveals that pattern number one was the fourth most common pattern in method sections; the full pattern (with three nominal structures) occurred seven times more frequently in introductions than in methods, which may indicate that more simple structures are prevalent in methods sections since researchers are expected to provide a clear-cut and concise

description of how an experiment was conducted. Note the following examples extracted from both sections:

- [7]. As an **illustration** of the **difficulty** of **acquiring** definiteness in languages without articles ... (44-I)
- [8]. ... in the **interpretations** of **findings**. (29- M)
- [9]. ...Brown and Levinson's **representation** of the **transition** from face-threatening **act** to **choice** of politeness strategy... (47-I)
- [10]. ... specific **interest** in students' **displays** of **knowledge** in classroom **interaction**. (3-I)

Examples 9 and 10 indicate three stages of embedding, nesting "one inside the other up to a considerable length" (Halliday and Matthiessen 2004:279) and packing more information in more complex constructions. Findings reveal that the more complex version exemplified in examples 3 and 4 was the ones only found in the introduction.

## 2. Preposition + (Premodifier) + Nominalization

This was the second most frequent pattern in the introduction and the most dominant one in the methods sections. Most of the nominal expressions in this pattern were preceded by premodifiers which account for the counting, specifying (e.g. this), describing (e.g. high localized), and classifying (e.g. metaphoric) of things (Eggins 2004). Consider the examples below:

- [11]. ... to identify stretches of text with high localized metaphoric **density**. (5-M)
- [12]. Coupled with this **volatility** is the intercultural and multilingual nature of the workplace ... (29-I)

The congruent form of example 11 (i.e., to identify stretches of *highly dense* text which are expressed using localized metaphors) implies that nominalization has enabled the author to encapsulate more information in fewer phrases, while in number 12, the nominal expression *volatility* refers back to the information expressed in the preceding text.

Instead of reiterating the information in the previous sentence as (i.e., *the inability to distinguish workplace and personal space as a result of the emergence of small office/home office (SOHO) and flexi-time at work*), the author distils and re-labels the whole phrase as a nominal expression, *volatility*, which functions as the theme and the given information of the clause, and evaluates the conditions at the same time. This use of nominalization as encapsulation facilitates smooth transitions between clauses and helps to construct texts economically and maintain cohesion in texts. In many cases, it also allows authors to retrospectively introduce evaluative stances into their arguments.

## 3. (Premodifier) + Nominalization + Prepositional Phrase (Qualifier)

Deictic, numerative, epithet, and classifier function as Premodifier in this pattern. The structure exemplified by Deictic + Numerative + Epithet + Classifier + Thing is called a "multivariate structure: a configuration of elements each having a distinct function with respect to the whole" (Halliday and Matthiessen 2004:331). The analysis revealed that prepositional phrases functioned as postnominal phrasal/clausal modifiers (prepositional phrases, infinitives, participle clauses, adjuncts, and relative clauses). This tends to support the claim (e.g. by Biber and Gray 2013; Bloor and Bloor 2004) that prepositional phrases constitute the most common type of postnominal Qualifier. This pattern, in Bhatia's (1993) terms, represents a complex nominal phrase, with the syntactic structure (Modifier) + Head + (Qualifier), where (Modifier) is realized primarily in terms of a series of linearly arranged attributes. The most significant



characteristic of this type of phrase is the degree and the complexity of modification of the noun head (Bhatia 1993). This is clearly demonstrated in examples 7 and 8, in which the nominalized head noun is modified by deictic, epithet, classifier, and prepositional phrase. Examples 8 and 9 show that nominalization converts processes into concepts and utilizes the potential of the nominal group's logical expansion to produce long noun phrases and a lexically dense style. The following examples illustrate this pattern.

[13]. ... the growing functional **importance** of promotional strategies in RA Introductions. (4-I)

[14]. Clearly, many corpus-based comparative **studies** on NS/NNS essays ... (1-I)

[15]. Many students need teachers' **guidance** on how to work together constructively. (21-I)

In example 15, for example, [*need teachers' guidance*] may be represented congruently as [*need their teachers to guide them.*] Nominalizations of this pattern can usually be unpacked as verb forms that endorse the claim that academic writers rely on noun phrases rather than clauses to present information (Biber and Gray 2010). In the pattern (Premodifier) + Nominalization + Prepositional Phrase (Qualifier), nominalization takes advantage of the meaning potential and the elasticity of the nominal group to assemble and compact meanings, giving the text an elevated style.

#### 4. Nominalization + Noun Phrase

A considerable number of nominalizations were followed by a noun phrase. These nominalizations are almost verbal in effect, thus performing the functions of condensation, conciseness, objectivity, and formality. Note the following instances:

[16]. ... it constitutes a channel for **transferring** selected data ... (47-I)

[17]. ... classroom exercises and activities were devised for the programme through **selecting, editing** and **presenting** appropriate real interactions ... (29-I)

In a number of cases, the noun phrase that followed the nominal expression encompassed a verb derived nominal expression itself, reducing longer clausal constructions, thereby making scientific language more compact, synthetic, functional and direct to the expert (Briones, Fortuny, Sastre and Pocovi 2003). To clarify the point, two examples are provided:

[18]. ... an indirect method for **correcting** students' erroneous **productions** or grammatical mistakes. (6-I)

[19]. ... **blending** the **results** of three types of qualitative analysis ... (27-M)

The above examples can be congruently represented as *an indirect method to correct what students have produced erroneously* and *we blended what resulted from three types of qualitative analysis*, showing that both of the nominalizations are verb derived. Through the use of the pattern Nominalization + Noun Phrase (containing a nominalization), two clauses are packed in one nominal group to perform the functions of conciseness, formality and semantic expansion.

In some instances, nominalization assists in maintaining a more impersonal academic tone by deleting the human agent within the sentences. A considerable number of the instances of this pattern incorporate the preposition *by* as indicated in the following examples:

[20]. ... the CSs were identified by **studying** the surrounding discourse ... (35-M)

[21]. The diversity of the corpus was assured by **selecting** articles written by scholars with different seniority and affiliation. (46-M)

In the congruent rewording of example 21, *we selected articles written by scholars with different seniority and affiliation to assure the diversity of the corpus*, the focus is shifted to agent. If it is rewritten as *articles written by scholars with different seniority and affiliation were selected to assure the diversity of the corpus*, the focus will be shifted to the rheme of the incongruent form.

In several cases, the nominalized structures of the pattern Nominalization + Noun Phrase were preceded by verbs that are usually followed by gerunds, and half of these gerunds constituted the nominal expression *using*. This pattern was mostly prevalent in methods rather than in introductions sections. The following examples illustrate this pattern showing that nominalizations (*creating* and *using*) are gerunds preceded by the verbs *requires* and *transcribed*.

[22]. ... identifying relevant indexes requires **creating** a posteriori categories ... (27-I)

[23]. The interviews were transcribed **using** NCH Express Scribe software ... (12-M)

Paraphrasing nominalizations as *we should create*, and *we used* shows that nominalization in this pattern both reduces the number of clauses and produces “a greater concentration of the experiential meaning and a smaller incidence of interpersonal elements, such as personal pronouns and modal verbs, thus presenting information in a less personalized way” (Briones et al. 2003:132). In the congruent paraphrase of some instances of this pattern (as in example 23), the order of presenting information is altered, resulting in the shift of focus to the agent or the rheme of the incongruent form, depending on whether it is reworded as an active or a passive voice. Another possible way of recasting the instances of this pattern is to use passive voice in order to avoid mentioning the agent (e.g. NCH Express Scribe software was used to transcribe interviews), confirming that nominalization provides writers with the ability to construe the world in a different way, or to conceptualize experiences from a different angle (Kazemian 2013).

## 5. Nominalization + Nominalization

Two nominalized expressions may happen to be adjacent as illustrated below:

[24]. ... a method that can contribute to **understanding learning** ... (6-I)

[25]. The ways of **expressing disagreement** ... (46-I)

The first nominal expression is a gerund most often preceded by a preposition. Nominalizations and gerunds are perceived to be markers of conceptual abstractness (Biber 1995). The congruent rewording of example 24 would be *a method that can help us understand how language is learned* in which two clauses are downgraded to a nominal group by nominalizing the verbs *understand* and *learned*. This is also true for other instances of this pattern, illustrating the nature of downgrading achieved by recourse to nominalization. This feature corresponds to the characteristic of academic discourse that uses fewer words to express more information.

There were other cases in which the first nominalization functioned as the classifier of the second nominalization (see examples 26 and 27 below).

[26]. ... the embodied noticings serve as a kind of preamble to the ensuing **correction initiation** ... (3-I)

[27]. The same has been done for **clarification requests**, where the clarification of “anything in the preceding written or oral discourse” has been included ... (35-M)

[28]. ... their focus is on generic language skills rather than **workplace communication competence**. (29-M)

Other possible ways of expressing examples 26 and 27 would be *the embodied noticings serve as a kind of preamble to situations in which students initiate to correct each other and the same has been done for situations where the speaker requested that anything ... be clarified* respectively. Through nominalization two clauses are reduced to a nominal group, making the discourse seem more condensed, refined, sophisticated, and semantically and syntactically loaded. The nominalizations functioning as the classifier emerge as verbs in a relative clause or an infinitive clause in the congruent rewording. In fact, the relative or infinitive clause can be reconstructed into the nominal group functioning as classifier. Furthermore, by eliminating the reference to people (e.g. *students* and *the speaker*), the authors of scientific texts show the tendency toward focusing on ideas, effects, and processes all encoded by nouns rather than human agents and their actions.

Example 28 is the typical instance of the rare case in which this pattern is expanded into three adjacent nominal expressions. Halliday (1985) refers to such strings of classifiers as univariate structures, generated by the recurrence of the same function. The scarcity of this pattern may be due to the fact that tightly packed lexical items (content words) increase the density of information and the complexity of the text, which corresponds to its readability. As claimed by Galve (1998:367), a passage of text consisting of “strings of lexical words without any grammatical words in between, especially when the strings are made up of nouns only” is the most difficult one to process, creating “typically dead sentences” (Zinsser 1980:109).

A univariate structure corresponds to compound nominal phrases which carry more content words and less function words than their congruent realizations (Briones et al. 2003). This is more obvious if example 28 is reworded as *whether they are competent to communicate in the workplace*.

The first nominal expression in example 29 below is the nominalization of preposition. In this type of nominalization, the prepositional phrase which often concerns information about time and place in the clause is metaphorically realized as a noun in a noun phrase. However, when the prepositional phrase changes into a noun metaphorically, it becomes the classifier of the nominal group. In example 30 below, the word *everyday* expresses the time that metaphorically changes to the classifier of the nominal expression *conversation*. Similarly, in examples 29 and 31, the words *workplace* and *group*, showing location in the clause, are also expressed metaphorically as the classifier in the nominal phrase, giving a more formal tone to writing and making it acceptable in academic discourse.

[29]. ... preparing them specifically for **workplace communication** ... (29-I)

[30]. ... a second language is used to a considerable extent in **everyday conversation**. (12-I)

[31]. ... using **group discussion** to reach a consensus in cases where there was disagreement. (5-M)

## 6. (Premodifier) + Nominalization + Participle Clause

The final pattern discussed in detail here shows co-occurrence of nominalizations with participle clauses in integrated and informational texts.

[32]. ... the **effort** put into preventing misunderstanding ... (35-I)

[33]. ... **assistance** provided to the students ... (47-M)

Chafe and Danielewicz (1987) have shown that the high frequency of participles is a distinguishing feature of academic writing. Participle clauses indicate abstraction and complexity in written language. They are a major means of syntactic compression, facilitating the development of a more compact, integrated style (Granger 1997). Participle clauses syntactically function as nominals, adverbials, and postmodifiers. In all the instances of their occurrence in this study, participle clauses function as the post modifier of nominalizations and specify their meanings as exemplified in 32 and 33 above.

### 3.2 Dominant nominal expressions in introductions and methods

The dataset that constituted the introduction sections of RAs included 23482 running words (total tokens), from which 2069 words were considered instances of nominalizations (i.e., one per 11.3 running words). In contrast, the method sections contained 16640 tokens from which 1081 were instances of nominalization (i.e., one per 15.4 running words). That is to say, the high frequency of nominalization in both sections indicates the strong use of a ‘nominal style’ in these texts, corroborating with the expectations of scientific discourse as outlined in the literature. Nevertheless, nominalization was found to be a more frequent linguistic phenomenon in introductions than in methods sections. A logical corollary of this difference is that the purpose of the method section is to describe the researcher’s actions in a clear and precise way to avoid confusion and ambiguity, hence the lower proportion of nominal expressions. It could also be the case that the difference can be characterized more objectively in terms of micro-genres. Narrative micro-genres are more typical of the methods sections and more grammatically congruent.

Table 3 below presents the 25 most frequent head words of nominal expressions in the introduction and method sections in the order of their frequency. It should be mentioned that in the table, the lemma *variation*, for instance, is considered as the canonical form for all of its inflected noun forms such as *variation*, *variable*, *variety*, and *variability*.

Introduction		Method	
Study	Distribution	Study	approach
Use	Description	Analysis	Reason
Research	Example	Use	Difference
Learning	Acquisition	Research	Transcript
Function	Development	Function	Finding
Analysis	Interaction	Identification	Interpretation
Variation	Result	Variation	Evaluation
Communication	Interest	Occurrence	Presentation
Finding	Choice	Discussion	Purpose
Comparison	Correction	Comparison	Proficiency
Production	Difference	Learning	Result
Understanding	Need	Interaction	Classification
Contribution		Error	

Table 3. 25 Most Frequent Nominalizations in Introduction and Method Sections

The five most frequent instances of nominalization in the introductions were the lemmata *study*, *use*, *research*, *learning*, and *function*, closely resembling the five most frequent instances of nominalization in the RA method sections (i.e., *study*, *analysis*, *use*, *research*, and *function*). *Analysis*, *research*, and *function* were among the 100 most frequently-occurring lexical items in Coxhead's (2000) Academic Word List (AWL), and in the Applied Linguistics Research Articles Corpus (ALC) found by Vongpumivitch, Huang, and Chang (2009). They also provided a list of 128 non-AWL content word forms that occurred at least 50 times in the ALC in which the word *usage* was given. In another study, Gardner and Davies (2013) presented a new Academic Vocabulary List (AVL) derived from a 120-million-word academic subcorpus of the 425-million-word Corpus of Contemporary American English (COCA) (85 million of the 120 million words came from academic journals). The nominal expressions *study*, *research*, *use*, *analysis*, and *function* were among the top 500 words in the AVL.

Furthermore, our analysis demonstrated that some nominalizations prevail in both introduction and method sections, or they range from almost a negligible minority in one of the sections to a conspicuous majority in the other section. For instance, *communication*, *production*, *understanding*, *acquisition*, *development*, *interest*, and *need* were significantly more frequent in introductions than in methods sections. The method sections also comprised nominalizations which were characteristic of this section, namely *identification*, *occurrence*, *error*, *approach*, *interpretation*, and *purpose*. For instance, the words *identification* and *interpretation* are mostly utilized in the procedure and data analysis subsections suggesting that knowledge is claimed differently in introduction and method sections. This conclusion is of course suggestive only considering the size of the datasets in this study. Thus, more caution is required in making generalizations about the nominalizations that are representative of introduction or method sections of RAs.

Moreover, the introduction sections included nominalizations not employed in the methods sections (e.g., *contribution*, *choice*, *completing*, *assessment*, and *expression*) indicating the distinct type of information presented in each section. The introduction, in which the writers construct an argument for their study, is assumed to be argumentative (Hood 2004) while the method section tends to be expository (Martinez 2003). The function of expository texts is to inform, describe, analyze, and/or explain various issues whereas the function of argumentation is to present evidence to support an argument or assertion (opinion, theory, or hypothesis) or advocate a particular viewpoint. Being more intellectually and linguistically challenging, argumentative writing is the act of forming reasons, making inductions, drawing conclusions, and applying them to the case in discussion. These different rhetorical structures entail utilization of diverse sets of words for structuring each section.

#### 4. Conclusion

Informed by the need to become aware of the ways of using nominalization for structuring texts and gaining knowledge of the rhetorical structures, this study explored various nominal patterns and dominant nominal expressions used in the introduction and method sections of applied linguistics RAs. The study revealed that academic writers organize the content of the two sections, in part, through 15 primary nominal patterns, all occurring in both text types with the preference for the exploitation of some of the patterns varying across these two RA sections.

The results of the present study have demonstrated that the pattern (Premodifier) + Nominalization + Preposition + (Premodifier) + Nominalization + Preposition + (Premodifier) +

(Nominalization) plays an important role in the organization of the introduction sections: it significantly increases the general density of information using a specialized pattern of information packaging. The high frequency of this pattern in the introduction sections indicates a high level of abstraction and complexity. In addition, the analysis of the data revealed the prevailing use of Preposition + (Premodifier) + Nominalization in methods sections indicating the use of more simple structures in this section. The findings showed that the use of expanded noun phrases is more pervasive in the introductions than in the methods sections.

Thus, the study ascertained that the roles played by nominalization are in compliance with the specific requirements of each section, and that nominalization is realized somewhat differently in these two constructs. The high frequency of nominalization, the occurrence of the same four most frequent nominal expressions (see Table 3) and the same patterns in the two sections represented the consistencies in the organization of information in these constructs in RAs. This study concluded that the conventions of applied linguistics RAs have developed to employ nominalization as a means of adapting the discourse to the purpose of communication within the discipline, and to meet the expectations of scientific discourse in general.

The present research contributes to the understanding of nominalization usage in applied linguistics RAs. One of the main pedagogical implications of this study is that, for novice researchers who pursue chances of publication, such insight into the conventions of academic writing in scholars' disciplines is necessary for success. In this regard, the findings of the present study can equip academic writers with the required knowledge about the nominal patterns and expressions in the introduction and method sections, so that their written discourse is recognized as belonging to the discipline to which they hope to become members. The use of these patterns enables effective writing which entails the ability to pack several complex abstract ideas in a single clause, thus making the text more dense and formal. Some of these patterns contribute to removing human participants from the sentence, leading to a more impersonal academic tone. In his study, Xue Feng (2012:1659) found that "descriptive analysis of the grammatical feature of nominalization is not adequate to develop students' awareness of using this feature in their writing", hence "teaching the nominalized structure and developing students' skills of using this feature in their writing are essential". Therefore, there are pedagogical values in acquainting students with the nominal patterns that tend to recur in the introduction and the method sections of published academic articles.

When an action or a process is realized as nominalization, much of the lexical meaning will be left out or concealed, and obscurity often occurs. Accordingly, an understanding of the functional role and textual consequences of nominalization is required for a full comprehension of the meaning of any text. The results of this study could serve as a platform for ESP/EAP courses, with special emphases on scientific precision, conciseness, and objectivity through nominalization. The findings of the present research can also sensitize researchers interested in disciplinary studies to open the path for cross disciplinary investigations.

The study enhances writers' awareness of the features of academic writing by identifying nominalized patterns employed in two different sections of research papers. However, it should be noted that the list of nominal expressions and the patterns presented in this study is far from being complete and cannot be generalized to other sections; thus, in order to provide a list of dominant nominal expressions specific to each section of RAs and to identify more idiosyncratic characteristics of these sections, a broader quantitative survey is deemed necessary. Assuming that our knowledge of nominalization use in other disciplines and cultures is very scanty, further

research is required to explore the ways in which nominalization is realized in hard and soft sciences or across different cultures.

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