

## Applied Linguistics Research Article Introduction Sections: Grammatical Metaphor as a Powerful Membership Status Index

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### Abstract

Recently, comparative investigations of academic Research Articles (RAs) between native and non-native writers of English have been the scene of considerable debate. This may translate into insider norm knowledge to help non-native academic writers approximate the native speaker's generic conventions of academic delivery. In this spirit, Halliday's notion of Grammatical Metaphor (GM) was used in this study to compare the introduction sections of Applied Linguistics RAs by Iranian and native speaker academic writers in Applied Linguistics. A random sampling was conducted to arrive at twenty-five RAs written by Iranian writers, and twenty-five by native speaker ones. The introduction sections of these RAs were analyzed synchronically using Halliday's types of Ideational Grammatical Metaphor. The article-to-article comparison data pointed to no significant statistical difference between the Iranian and native speaker writers' deployment of Ideational GM in the introduction sections of the selected RAs, although in the overall number of types of GM used, the difference was significant. The results show that in a 13-cells (100.0%) scheme, expected frequencies lie below 5, where the minimum expected cell frequency is 1.0. As such, based on significant level ( $1.0 < 5$ ), the difference was statistically significant (100.0%) scheme, expected frequencies lie below 5, where the minimum expected cell frequency is 1.0. As such, based on significant level ( $1.0 < 5$ ), the difference was statistically significant. The findings of this research might be helpful for curriculum developers and syllabus designers, by way of a need for the inclusion of suitable writing instruction practices and norms which could not only familiarize EFL students with academic and scientific writing conventions, but work also to increase their awareness about the real lexicogrammatical and syntactic dimensions of re-mapping that powerful semantic and systemic processes like GM trigger at the level of the clause.

**Keywords:** Grammatical Metaphor; Introduction Section; Applied Linguistics; Native-speaker Writers; Non-native Writers

### 1. Introduction

Two notions crucial to the analysis of cultural and social features in every speech community are Genre and Rhetoric. According to Mauranen (1993), a genre captures a set of mostly general and universal linguistic patterns, whereby the recurring linguistic patterns in a speech community or cultural discipline help shape the essence of that culture (p. 4). Miller and Joliff (1986) noted that subscribing to and aligning oneself with a genre in producing discourse amounts to meeting certain formal requirements which suit the specific needs of a speech community. By the same token, some suggest that the notion of genre can be placed somewhere in the middle of the continuum ranging from micro level natural occurring language to the macro level of culture (e.g. Medway & Freedman, 2005). Similarly, Miller (1984) asserts that genre is considered to be a "cultural artefact" that is all the can be considered as a macro-level of a discourse, while rhetoric is a set of adjustments which need to be set to fit certain formal rules in specific speech communities (p. 57).

Meanwhile, Mauranen (1993) claimed that culturally driven features of genres inherent in every national and cultural community, which are considered as rhetoric, cannot be discarded or

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ignored (p. 5). In other words, within every speech community, there might be some hidden rhetorical strategies which are constrainedly selected based on the writer's system of beliefs and values in order to enhance the persuasive tools of writing within a certain overarching genre (Mauranen, 1993, p. 5). In these terms, rules ought to exist to consider the context of literacies and scientific writing norms which cannot automatically be generalized deductively to a set of technical rules applied liberally to other disciplines (Street, 1995).

With a bearing on this study, the term Contrastive Rhetoric was originally introduced by Kaplan (1966) who analysed essays by a number of non-native students from various countries and compared them with those written by native speaking writers. Interestingly, the study found that the non-native writers' essays had distinctive patterns of organization which did not fit in at all with their native speaker counterparts' productions (Kaplan, 1966). Kaplan concluded that these variant features in the writings of non-native speaker writers were rooted in cognitive orientations.

Systemic Functional Linguistics, on the other hand, regards context as being prominently vital in determining the description and analysis of language. To Firth (1957), context plays a major role in functional linguistics, fueling systemic description (Webster & Halliday, 2009). In SFL, the notion of Grammatical Metaphor (GM) first originated as a complementary addition to the more traditional and famously and allegedly central type of metaphor, i.e. lexical metaphor (Taverniers, 2003; Vandenberg et al, 2003). Taverniers reminds that Halliday put the older definitions of metaphor aside and introduced a new perspective on metaphor in which grammatical processes as well as semantic ones are involved. Accordingly, Halliday (1985) asserted that in both the traditional lexical metaphor and the new notion of Grammatical Metaphor, there is a kind of rhetorical transparency. He adds that lexical rewording can be subcategorized in Grammatical Metaphor which addresses both grammatical as well as lexical variation, re-mapping and re-construal (Ravelli, 2003).

In older more traditional paradigms, metaphor was viewed as multiple distinctions in the meaning of words where lexemes, when looked at from below, could have at least one literal meaning and one metaphorical meaning (Webster, 2009). Conversely, in the new notion of Grammatical Metaphor, when the sentences are viewed from above, they could have multiple manifestations of grammatical meaning in reversing the order of words (Melrose, 2003; Taverniers, 2003). In contrast to traditional definitions of metaphor in which it was the lexemes that were the most crucial elements to engage with, in Halliday's new approach to metaphor, a combination of both lexemes and the grammar of sentences enters into the text analysis.

Halliday famously proposes the example *the protests flooded in*. He explains that in this example the verb *flood in* can have multiple levels of lexical and grammatical meaning. He adds that from a traditional lexical metaphorical standpoint, the verb *flood in* may construe the meaning 'to happen in large quantity'. Additionally, there can also be a grammatical reordering of words in which the verb *flood* can shift to a noun and become *the flood of protests* (Halliday, 1994). The effective application of GM is attested frequently as one such important rhetorical building block and semantic/textual strategy in scientific/academic writing (Banks, 2003; Farahani & Hadidi, 2008; Halliday & Matthiessen, 1999; Painter, 1999; Susinskiene, 2004).

Research using Systemic Functional Linguistics (SFL) sheds a lot of light on the varied demands of academic discourse, especially the linguistic descriptions of academic genres (Liardét, 2015). Across varied academic genres, some commonalities emerge, particularly the use of "lexicalized and expanded noun phrases, and choosing grammatical features that project an authoritative stance" (Schleppegrell, 2001, p. 434). Halliday (1985) argues that one needs to first describe the ontogenesis of language in children to account for the linguistic tools necessary to achieve these features using which adolescents seem to be semantically and cognitively initiated into schooling, literacy and academic discourse. Halliday (1993) adds that there is a congruent realizational semantics that children use for the concrete (unmarked) interactions of everyday language; there is then a shift toward abstract, incongruent expression, or grammatical metaphor (GM), as a semantic, cognitive and grammatical threshold (Holme, 2003), over which children cross into the adolescent, academic, schooling world and the beginnings of real literacy (Derewianka,

2003). The metaphorical realizations he describes represent a move away from grammatically intricate, dynamic language toward the lexically dense, static expression required when language needs to ‘sit still’ in the written mode (Halliday, 1993). This move toward stable phenomena reorganizes language systematically, promoting more cohesive information flow through the creation of “a new kind of knowledge, scientific knowledge, and a new way of learning” (Halliday 1993, p. 118).

The introduction sections of Research Articles (excluding literature review) are seemingly subjective loci of discourse within which writers follow a free flow of thought, wanting to give a lay of the land and a voice to their own impetus, all in their own tone. In this spirit, the analysis of GM types could reveal part of the discourse producers’ mental and cultural intuitions, templates and cognitions (Alimohammadi, 2017; Halliday & Matthiessen, 1999). Furthermore, comparative analyses of RAs written by non-native speakers in academic areas and their native-speaking counterparts may make for better understandings of where effective uses of relevant generic and rhetorical strategies lie (Alimohammadi, 2017; Lillis & Tuck, 2016; Hyland, 2009).

## 2. Grammatical Metaphor

As many figures in the field argue (Halliday & Matthiessen, 2013; Holme, 2003; Painter, 1999; Taverniers, 2003), the notion of Grammatical Metaphor, as studies like this should be able to show, is an important meaning-making device for SFL. In its perspective on language as stratified semiotic, GM is a simultaneous nexus of meta-functional, cultural, cognitive and discursive meaning and knowledge which shapes and directs culture-, discourse- and content-driven grammatical and lexico-grammatical choices. Comparative studies tapping into social practice within genres by the members of these genre and discourse communities would reveal many insights into the textual rituals and discursive practices involved. GM is one such tool strongly suited to this purpose.

In this study, the focus is on Ideational GM within the ideational meta-function. In relation to ideational meaning, Webster (2004) notes that grammar is developed in the human brain, while meaning is interpreted and affected in social acts by ongoing flow of experience. Furthermore, in ideational practice, the grammar has the power to connect the human organism to the world and social understanding, and represent a theory of categorization. In other words, grammar has a significant capacity to represent and refer to the process of perception of the surrounding environment and how it unfolds (Halliday & Matthiessen, 1999). Experience effected from social surroundings is, therefore, reflected in grammatical processes cast by analysis and categorization. Webster (2007) believes that the concept of context is optimally important because through the diversity and detail of Halliday’s conceptualization of the (lexico-grammatical) meaning potential, language can be described and brought to bear on the analysis of real social practice and communication within and between genres and members.

Webster (2004) assumed there to be two general terminologies in ideational GM, within a semiotic perspective. One is the semiotic capacity of GM to ‘refer’; the other is its capacity to ‘expand’ and to create a chain of reasoning. The former refers to ‘experiential ideational GM’ while the latter captures a ‘logical ideational GM’. In experiential ideational GM, certain classifications and configurations (the cognitive semantic meaning-making stratum postulated in SFL to lie above and semogenically happen prior to the level of the clause; for the purposes of the moment, a configuration can be taken to correspond to the traditional semantic notion of ‘proposition’) are used which shape the manner in which experience can be mirrored and reflected upon (Webster, 2004). The grammar in this ideational guise mainly consists of processes in the form of clauses and units, its components being: processes (roughly corresponding to verbs in the traditional sense), entities/participants that take part in processes (roughly speaking, subject and object noun phrases to the right and left of the verb), circumstantial elements that are involved (adverbs in a general traditional sense). The principle of ‘congruence’ (non-metaphorical conceptualization and lexico-grammatical realization) can be illustrated in the following way:

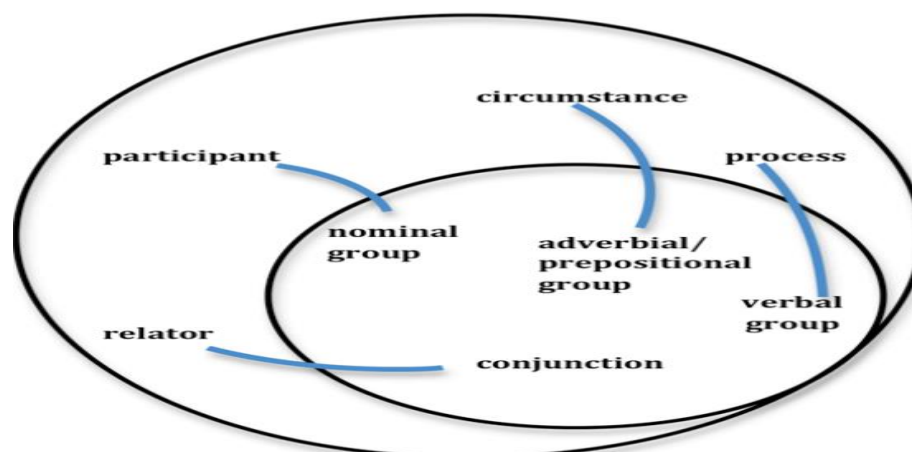


Figure 1. Congruent Relationships Across The Lexicogram And Discourse Semantics Strata (Liardet, 2014)

In this sense, grammatical metaphors can be used as tool for determining the quality of academic discourse, of which Research Articles are a prime manifestation. There have been a number of comparative studies in which GMs were used as a basis of interpretation. Sayfour (2010) analyzed types of GM in introduction and discussion sections of medical Research Articles written by Iranian and American writers who published in ISI and Non-ISI journals. She found that the writers who published in ISI journals had deployed a higher frequency of types of Grammatical Metaphor (GM) in their writings. In another study by Jallilfar et al (2015), nominalization types were analyzed in introduction and method section of Research Articles written by Iranians in Applied Linguistics subfields. The findings indicated that the introduction section of articles enjoyed a higher frequency of nominalization, which was in line with Sayfour (2010). The other relatively similar study was by Merabi et al (2018) who measured the frequency of nominalization in the introduction sections of RAs in soft and hard sciences. They used manual text analysis to locate zero-derivational type of nominalization. They concluded that action nominalization was more significant in the rheme clause in hard sciences. However, few studies have compared the significance of GM in the introduction section of Research Articles in Applied Linguistics by native speaker academic writers and non-native ones.

Wen-xiu (2010) analyzed types of GM among English and Chinese political texts. He concluded that in Chinese political texts, there is an implicit but uniform agreement on using types of GM. Hadidi and Raghmi (2012) analyzed a corpus of three business and three political texts on the basis of instances of Ideational Grammatical Metaphors, indexical of generic differences and forces in discourse, evident especially in political discourse of Tony Blair when arguing for and convincing the audience that the Iraq war was a tenable course of action. They found that both political and business texts types, nominalization as Grammatical Metaphor was employed, albeit to different extents and for different critical, ideological and discursive goals. Similarly, Behnam and Kazemian (2013) estimated the number of Ideational Grammatical Metaphors in scientific and political texts. They concluded that a higher deployment of Ideational GM enabled the writers to reduce the number of the clauses and convey more information by using more nominal groups. Yegane and Sahrae (2020) analysed 105 research articles written over the past 3 decades by Iranian writers in the fields of Physics, Linguistics, Chemistry, Political Science, Mechanical Engineering, Civil Engineering, and Medicine, with the research articles in each discipline ranked based on the frequency number of IGM usage. Liardet (2015) used the medium of Grammatical Metaphor in order to investigate the level of academic literacy among 130 learners. She found out that GM tends to subtly highlight the trajectory of development among the selected Chinese learners.

Cakir Sari and Kansu-Yetkiner (2011) analyzed lexico-grammatical features, including nominalization, used by Turkish and their corresponding English translation in the abstract section of Research Articles. Ezeifeka (2015) probed into types of ideational GM as well as types of nominalization in abstracts written by academic writers among undergraduate research abstracts. Coming closer to our study was one by Arizavi et al (2015) in which types of nominalization were

analyzed in discussion sections of RAs written by Iranian and English writers in local and international contexts. They studied both the moves and types of nominalization in the discussion sections, finding that writers in international journals used a higher frequency of types of nominalization. Ryshina-Pankova (2015) used a meaning-based approach to the study of complexity in L2 writing from a GM perspective. Velaquez–Mendoza (2015) traced the development of advanced literacy by two undergraduate language learner populations. Dinagara (2016) used Halliday's framework of GM to analyze students' translations of discussions written by students of fifth and sixth semester of public universities. Alternatively, Jalilfar et al (2017) explored nominalization in introduction and method sections of Applied Linguistics Research Articles. Meanwhile, Merabi et al (2018) measured the frequency of nominalization in introduction sections of RAs in soft and hard sciences. Xuan and Chen (2019) synthesized interpersonal, textual and ideational GM in primary research studies. Huang and Yu (2021) compared the abstracts of under-graduate students with those of post-graduate students. They found that in both groups of writers, the sub-types Grammatical Metaphor were deployed. Additionally, they estimated the nearly high frequency of the top five types among both groups of writers.

The studies briefly touched on above point to something of a paucity of comparative intra-generic research in the area of ideational GM, justifying studies on the rhetorical organization of academic delivery among academia in Applied Linguistics as a discourse community, especially when comparing the members of this generic circle on a diverse scale, in terms of the non-native writer's observation of generic conventions, and the international scene of academic writing in this genre which most likely sets the pace for the conventions of the genre to be followed further down the hierarchy by non-native speaking trained academic writers.

### 3. Purpose

Against this background, this study seeks to study the differences in the deployment of Ideational Grammatical metaphor in the introduction sections of Research Articles written by Iranian and native-speaker writers within the field of Applied Linguistics. The analysis focused on non-native writers published in both ISC-indexed home journals and high-impact international ones, as compared to the academic native speaker writers in Applied Linguistics.

The rationale for the current study consists in its being driven by the a priori assumption and hypothesis in genre studies that comparing the deployment of Grammatical Metaphor between native and non-native speakers published in established journals of the same discipline (Applied Linguistics as the focus in this study) should reveal little difference in such use, since it would be expected that roughly proportionate scientific, semantic, philosophical, and cognitive prowess and insight on the part of both groups of academic writers, irrespective of native speaker status, would be feeding into their academic writing artefacts and products, even if the non-native highly achieving academic writers in these humanities fields were doing it on a more conscious level than do the native ones (although even this is open to question). If Grammatical Metaphor is indeed the cross-stratal carrier and index of such adult socio-cognitive initiation and winning academic-writing genre-based semantics (Halliday and Matthiessen, 1999; Banks, 2003; Holme, 2003), then it is only natural that probing its use in highly academic circles would point to certain similarities in generic conventions.

Comparative intra-generic research in the area of ideational GM among academic writing in the humanities is an under-research area in general. It justifies studies on the rhetorical organization of academic delivery among academia in Applied Linguistics as a discourse community.

### 4. Methodology

#### 4.1. Corpus

The journals selected were all affiliated with Applied Linguistics. The RAs were selected randomly. Although other Asian journals of Applied Linguistics were included in the non-native speaker corpus, the RAs written by Iranian non-native speakers spanned a mixture of the range of top-ranking ISC-indexed journals based in top Iranian universities. The ISC indexing database captures the Islamic Word Science Citation Centre, two top and most cited journals among which are The Iranian Journal

of Language Teaching Research and Iranian Journal of Applied Linguistics. The corpus of RAs written by native-speaker writers was selected from well-known international Applied Linguistics journals with high impact factors. Twenty-five RAs written by Iranian writers and twenty-five by native-speaker English writers were purposively selected from these two corpuses on the basis of impact factor and H index. The international journals used in this study are listed below with country affiliations and year of publication:

Table1. The International Journals Publishing the Native Speakers in this Study

<b>Name of the journal</b>	<b>Year of publication</b>	<b>Affiliation of Writer</b>
Springer	2014	Sydney
Brain and Language	2014	USA
Brain and Language	2015	USA
Brain and Language	2015	USA
Brain and Language	2015	UK
Communication Disorders	2015	US & UK
Journal of Pragmatics	2002	UK
Journal of Pragmatics	2016	UK
Journal of Pragmatics	2016	UK
Journal of Pragmatics	2016	UK
Journal of Phonetics	2013	UK and Australia
Journal of Phonetics	2015	UK
Language and Communication	2014	USA
English for Specific Purposes	2016	UK and Australia
Ampersand	2005	USA
Ampersand	2015	USA
Ampersand	2015	New zeland
Lingua	2015	USA
Linguistics and Education	2016	UK and Australia
Linguistics and Education	2006	Australia
English for Academic Purposes	1996	USA
Computer and Education	2006	USA
English for Specific Purposes	1993	1993
Journal of Pragmatics	2015	Canada
Journal of Pragmatics	2015	UK

The following table outlines the corpus of journals where the Iranian writers' research articles were published:

Table 2. The Applied Linguistics Journals Publishing the Iranian Writers in this Study

<b>Journal</b>	<b>Year of publication</b>	<b>Affiliation of Writer</b>
IJLTR	2015	Tabriz
IJLTR	2015	Shiraz
IJLTR	2016	Tabriz
Procedia-social and behavioural sciences	2014	Tehran
Procedia-social and behavioural sciences	2014	Ahvaz
Procedia-social and behavioural sciences	2014	Yazd
Procedia-social and behavioural sciences	2014	Fars
Procedia-social and behavioural sciences	2014	Isfahan
Procedia-social and behavioural sciences	2014	Tehran
Procedia-social and behavioural sciences	2014	Ahvaz and Tehran
Procedia-social and behavioural sciences	2011	Hamedan
Procedia-social and behavioural sciences	2013	Isfahan
The Linguistics Journal	2016	Kerman
The Linguistics Journal	2016	Shiraz
ELT Journal	2009	Tehran

IJAL	2012	Isfahan
IJAL	2015	Ahvaz and Tehran
Asian ESP Journal	2010	Yasouj & Tarbiat Modares
Asian ESP Journal	2010	Karaj & Allame Tabatabaie University
Asian ESP Journal	2010	Shiraz
Asian ESP Journal	2007	Ahvaz
Asian ESP Journal	2007	Isfahan
Asian ESP Journal	2007	Isfahan & Najaf Abad
IJAL	2014	Shahid Beheshti University
IJAL	2014	Tehran

#### 4.2. Instrument

With the introductory account of GM given above, we can now further elaborate on the types of ideational GM. Table 1 below represents the 13 sub-types of GM developed by Halliday (2004) with their class shift and examples, helping with the better grasp of different taxonomies advanced by Halliday (2004) and Halliday and Matthiessen (1999), and how each classification can change into the other types. This categorization was used for the analysis of the introduction sections of the research articles in this study. The following depicts the model presented by Halliday (2004).

Table 3. Types of GM developed by Halliday (2004, p.42)

Metaphorical to Congruent	Class shift	Example
Quality to entity	Adjective to noun	Unstable → instability
Process to entity	Verb to noun	Transform → transformation
		With → accompaniment
Circumstance to entity	Preposition to noun	So → cause
		[Poverty] is increasing → increasing[poverty]
Relator to entity	Conjunction to noun	[Decided] hastily → [hasty] decision
Process to quality	Verb to adjective	Then → subsequent
		Be about → concern
Circumstance to quality	Adverb to adjective	So → cause
Relator to quality	Relator to adjective	When → in times of
Circumstance to process	Preposition to verb	
Relator to process	Conjunction to verb	Phenomenon of...
Relator to circumstance	Conjunction to preposition	.... occurs
	0 to noun	The government decided → the government's decision
Zero to entity	0 to verb	
Zero to process	Noun to various	
Entity to expansion		

#### 4.3. Procedure of Data Collection

We analyzed 50 RA introduction sections, 25 native speaker writers in Applied Linguistics, and 25 non-native ones, for reasons to do with practicality and feasibility of rigorous manual discourse analysis, since locating and evaluating Grammatical Metaphor is a deeply contextual and discourse-dependent affair (Thompson, 2014; Halliday & Matthiessen, 2014; Derewianka, 2003). From a Systemic Functional Linguistics standpoint, the stratum of the Semantics (all of stratification for that matter) is in synergy with the strata above and below it (the ones realizing and being realized by it), with choices in one stratum having contextual repercussions pervading through all the adjacent systems and strata (Halliday & Matthiessen, 2014; Halliday & Matthiessen, 1999; Heyvaert, 2003). All this warranted a level of rigour that rendered going beyond 50 RAs impractical for the purposes of the moment.

In order to explore the intended deployment of GM types between the native speaker (henceforth NS) and non-native speaker (henceforth NNS) Iranian writers, two parallel corpora of RAs were compiled from the Applied Linguistics journals as mapped out above. After collecting

twenty-five RAs written by NS and twenty-five by NNS Iranian academic writers, the clause-neuxes were identified as the basis of analysis. As Webster (2004) argued, human experience is mirrored in the processes of grammar shaped in the form of units and clauses. Thus, the clauses, groups of noun phrases and verb phrases, adjective phrases, and propositional phrases were identified as basic units of analysis.

These groups were then categorized under the taxonomies of the model above where they belonged. This stage was followed by the categories being enumerated and the number of each type of IGM being put in the chart to be calculated. The 13 sub-types of IGM were divided into two groups: 'experiential' and 'logical'. Each RA was analysed according to the number of types and subtypes of logical and experiential GM in order to find not only the percentages of the overall use of experiential and logical GM, but also the difference in the deployment of these types of GM between the NS and NNS writers.

According to Matthiessen (1999), in defining experiential IGM, it is the clause as the main part of grammar that presents this process of change through its parameters. The component parts within which the process of change is reflected and analysed are: processes, participants that take part in the process, and circumstances which attend on the process. The most important type of experiential GM is nominalization.

It is important to note that Halliday took Logical GM to be concerned with links between one process and another. It involves a deriving of grammatical logic from formal logic. In other words, the unlimited capacity of each experience leads to other experiences. Therefore, Logical GM relates to how the network of pairs of clauses is linked to one another. As a part of experiential system, Logical GM constitutes a kind of relationship in which every element represents an entire process. Thus, types 1, 2, 3, 5, 6, 8, 11, 12, 13 were distinguished and described separately as experiential IGM, from types 4, 7, 9, 10 as logical IGM.

And finally, the frequency of GM types in the NS and NNS texts (the introduction sections of the RAs written by them) were analyzed. To compare the deployment of types and sub-types of GM, paired difference Man-Whitney was used. The data was applied to Man-Whitney in the form of frequencies, not percentages. In order to secure the reliability of the data, the Cronbach alpha statistics was used and the resulting outcome, which was .960, pointed to the data enjoying optimal reliability. Posthoc Inter-rater reliability (2 authors and 3 other expert analysts in SFL and GM) was 88 percent, upon collating all of the analyses and comparing the codings across the 5 raters/analysts.

## 5. Results

In line with the objectives, first, the frequency of types and sub-types of GM were estimated; secondly, the number obtained for each type of GM was changed to proportion for that type. The following table shows the proportion of each type and sub-type of GM used by NS writers of English in the introduction sections of published RAs.

Table 4. Proportion of types of GM deployed by NS writers in RA Intro sections

Types of GM	F of GM types in RA intros of NSs	Percentage of GM types in RA intros of NSs
Quality to entity	111	3.3%
Process to entity	1529	46.19%
Circumstance to entity	15	0.4%
Relator to entity	4	0.1%
Process to quality	224	6.7%
Circumstance to quality	463	13.9%
Relator to quality	8	0.2%
Circumstance to process	0	0
Relator to process	10	0.3%



Relator to circumstance	3	0.9%
Zero to entity	214	6.4%
Zero to process	122	3.6%
Entity to expansion	318	9.6%
<b>Total</b>	<b>3021</b>	

As can be observed from this table, the deployment of types and sub-types of experiential IGM was more noticeable than that of the logical one. Among the subtypes of experiential IGM, the deployment of the second category – the shift from verb to noun – was the most remarkable, supported by the emphasis in the literature that nominalization is the principal guise in which GM manifests itself (Farahani & Hadidi, 2008; Heyvaert, 2003; Holme, 2003; Halliday & Matthiessen, 2014; Halliday & Matthiessen, 1999; Martin, 2008). This supports the fact that the use of nominalization is a favoured GM strategy among native speaker academic writers. The other highly used category was type 6 involving the shift from adjective to adverb. The third most frequent type was the thirteenth type, a combination of nominal with ‘of’ or ‘s’ (apostrophe S). The other types were used less frequently in terms of the types of the GM model mapped out above in Table 1. The logical types of IGM seem to be dwarfed considerably in frequency and use next to experiential types. The following table shows the frequency and percentage of types of GM used by NNS Iranian writers.

Table 5. Proportion of types of GM deployed by Iranians writers in RA Intro sections

Types of GM	Frequency of GM types In RA Intros of NNSs	Percentages of GM types In RA Intros of NNS
Quality to entity	131	5.55%
Process to entity	1032	43.76%
Circumstance to entity	28	1.18%
relator to entity	10	0.42%
Process to quality	178	7.54%
Circumstance to quality	342	14.50%
Relator to quality	6	0.25%
Circumstance to process	5	0.21%
Relator to process	19	0.80%
Relator to circumstance	2	0.08%
Zero to entity	165	6.99%
Zero to process	142	6.02%
Entity to expansion	298	12.63%
<b>Total</b>	<b>2358</b>	

The findings point to the fact that the estimated frequencies of occurrence of IGM types and sub-types in the introduction sections of academic Applied Linguistics/Linguistics RAs in the two groups of NS and NNS academic writers lie quite close, supporting a similarity between these two groups in this regard, although the deployment of some types of IGM may incline to differ slightly. Experiential sub-types of IGM tended to lie at the highest percentages for both groups; significantly, for both NS and NNS writers, type 2 of IGM, nominalization as GM, was the most frequently used one. Nominalization has been known as the single most powerful resource for creating grammatical metaphor (Halliday & Matthiessen, 2014; Halliday and Matthiessen, 1999; Liardet, 2016). In line with the semantic and generic properties of GM, it helps create a style of writing with density, complexity and abstractness, special features of English academic and formal writing (Farahani & Hadidi, 2008; Halliday & Matthiessen, 1999; Heyvaert, 2003; Taverniers, 2006).

Similar to the distribution of types of experiential IGM taxonomy, type 6 was the second most frequently used type. Type 5 and 13 were the two other commonly used categories. In contrast to the deployment of experiential IGM, the distribution of logical IGM remained at a minimum for both groups. Based on this picture of the data, the chi-square test was used to determine the extent to which

the deployment of GM used by Iranian writers was different from native speaker writers. The following table presents the results.

Table 6. The chi-square test for analysis of frequency of GM among NS and NNS writer

	Native writers	Iranian writers
Chi-square	.000a	.000a
df	12	12
Asymp. Sig.	1.000	1.000

The results show that in a 13-cells (100.0%) scheme, expected frequencies lie below 5, where the minimum expected cell frequency is 1.0. As such, based on significant level ( $1.0 < 5$ ), the difference was statistically significant. The Mann-Whitney U test was used to estimate if there was a statistical difference in GM types on an article-by-article basis between NS and NNS Iranian writers. The following table lays out the results.

Table 7. Mann-Whitney U Test for the two Groups.

Mann-Whitney U	247.000
Wilcoxon W	572.000
Z	-1.271
Asymp. Sig. (2-tailed)	0.204

The Z value and the significance level, given as Asymp. Sig. (2-tailed), were presented in the output. As Table 7 shows, the Z value was (-1.271) with a significance level (p) of ( $p = .20$ ). The probability value (p) was more than the assumed level of significance (.05); thus, the difference did not prove to be significant. It can be concluded that there was not a statistically significant difference between NS and NNS writers' use of IGM types in the introduction sections of RAs. Both groups seemed to be aware of and favour nominalization as the most dominant GM strategy.

## 6. Discussion

To recap, this study aimed to analyse the types and sub-types of Ideational Grammatical Metaphor deployed in the introduction sections of Applied Linguistics RAs between Iranian and native-speaker writers on an article-by-article basis. First, the general findings, of which three strands can be discerned, are provided. After that, some examples from the actual sentences in NS and NNS academic discourse analysed in this study are presented, within which the GM categories used are explained.

### 6.1. Qualitative Findings

To begin with, the findings did not prove to show a statistically significant difference between the NS and NNS academic writers, both using nominalization as GM as their prominently chosen academic discourse feature. Considering the theoretical fact that nominalizations are the prominent realization and linguistic resource for the phenomenon of grammatical metaphor (Halliday, 1993; Liardet, 2016; Martin, 2008), the findings also support and agree with the belief that GM, especially nominalization, has some primary semantic and generic properties, to do with creating a style of writing that has density, complexity and abstractness, to discharge the special features of English academic and formal writing (Farahani & Hadidi, 2008; Halliday & Matthiessen, 1999; Heyvaert, 2003; Taverniers, 2006).

Another point the data in this study reveal was to do with the total number of GM types used by these two groups of NS and NNS Iranian writers; the difference was statistically significant, which could be partly explained by the inherent fortuitous variation in the thematic and topical demands of the texts of the research articles, and partly by the still slightly different cognitive template in native speaker writers with regard to GM. This obviously calls for further research.

The results are in line with Sayfour (2010) and Arizavi et al (2015) who also concluded that NS academic writers enjoyed a higher frequency of deployment of types of IGM. Regarding the similar pattern of IGM types, Sayfour's (2010) investigation of the introduction sections of medical

articles written by Iranian and American writers reached the same results on similar patterns of Ideational GM being employed by both groups of writers. Sayfour pointed out that this similarity could well be fuelled by Iranian writers' sophisticated level of required disciplinary knowledge about the scientific target writing norms desired and expected in the genre. Along the same lines, Sayfour claimed that NNS Iranians have been successful in aligning themselves with the norms and rhetorical features of disciplinary and in-group meaning-making of the genre, increasing the force of such critical generic ingredients as membership status, insider credibility and in-group solidarity. Similarly, as GM could be considered a type of generic status quo in raising the quality of academic writing, according to Liardet (2016, 2015), becoming professional in a globalized world is to be able to transmit knowledge prosperously, necessitating the awareness of conventional tools which should be used in academic and scientific discourse, one primary ingredient of which is GM.

The findings fleshed out the preferred use of types of nominalization as GM in both groups of writers. Arizavi et al (2015) who investigated the number and types of nominalization in introduction and discussion sections of Applied Linguistics articles found that, in international academic settings, there was a higher frequency of nominalization in certain moves of the introduction section. The authors believed that the use of nominalization as GM was inspired by the need in academic writing to recap the objectives in the introduction section (p.13). By the same token, Jalilfar et al (2015), who investigated the number and types of nominalization in introduction and method sections of Applied Linguistics articles, found a higher frequency of nominalization in certain moves of the introduction section. The authors believed that due to recapping the objectives in the introduction section, the writers tended to use more nominalization (p.13). Furthermore, these authors believed that the rationale behind the higher deployment of nominalization types in the introduction section is likely to have something to do with the micro-genres and purposes involved in the introduction section. Another explanation for the higher frequency of nominalization by Merabi et al (2018) is that this could be due to the required rhetorical organization in the introduction section. Another account provided by these authors concerning this higher frequency of nominalization was that the nature of the generalization process which the introduction section rhetorically is responsible for implementing would call for the deployment of more nominalization (Merabi et al, 2018).

This agrees with a large body of SFL theory; Halliday (2004), for example, believed that the use of nominalization is not only a vital element in scientific writing, but deploying it will also help shape a complex structure of semiotics. Similarly, scholars like Taverniers (2006), Liardet (2015), Sayfour (2010), Jalilfar et al (2015), and Merabi et al (2018) agree with this insight, arguing as well that this similarity could have its roots in NS and NNS writers' similar cultural and cognitive packaging in choosing types of nominalization in comparison to other semiotic types, suggesting that native speaker status is trumped by membership (genre) status and that fully professional and trained academic writers possess knowledge of academic genre conventions, originally laid down by native speaker writers in academia, enabling them to perform almost indistinguishably from fellow native speakers in professional academic writing and meaning making. This of course would benefit from more research.

## 6.2. Examples of GM Types in the Corpus

The following examples show how this type of Ideational GM was used by Iranian and their counterpart NS writers in our study. This sentence used by an Iranian writer shows how a metaphorical meaning of a nominal group can change to a verbal group, although this example consists of other types of GM which will be explained later:

- *Student's perception of justice can be in relation to an outcome, such as a grade at school or university and can lead to different reactions.* (actual metaphorical wording)
- *What students perceive about justice.....* (congruent unpacking)
- *While the development of these syndromes is beyond the scope of this paper.....* (actual metaphorical wording)
- *While the way these syndromes are developed is beyond.....* (congruent unpacking)

This example was used by a native speaker writer, showing how the nominal group can change to a verbal group. The variation in the use of type 6 (an adjective group in the congruent mode shifting to an adverbial group in the metaphorical mode) in these two groups of writers is noticeable. In other words, NS writers tended to use type 6 of IGM at higher frequencies than Iranian writers, which might be an index of some NNS writers' insufficient linguistic command over what would otherwise demand complex linguistic dexterity. This is supported by Sayfour's (2010) results as well. The following examples demonstrate how these types of Ideational GM were deployed by Iranian and NS writers.

- *Student's perception of justice can be in relation to an outcome, such as a grade at school or university and can lead to **different reactions**.* (actual metaphorical wording)

- .....can lead to ways in which they **react to it differently**. (congruent unpacking)

In this example used by an NNS Iranian writer, the metaphorical meaning of an adjective group shifted to an adverbial group, making use of type 6 of GM. The next type of Ideational GM was type 13 which involves a shift from noun to various other forms. This type can be considered a type of nominalization or type 13 category as well. The following example depicts how this type was used.

- *This study provides a **description of the word meanings** derived from expository texts by L2 users* (actual metaphorical wording)

- *The word meanings derived from expository texts by L2 users **are described** by/in this study.* (congruent unpacking)

In this example, the nominal group *description* is a type 13 GM which can be subjected to expansion in the logical meta-function and trigger added semogenic (expansion-related) resources in the scientific discourse the congruent version simply does NOT have access to (Halliday and Matthiessen, 1999; Thompson, 2014). It seems that the slot-and-category feel and pattern of such constructions as *X provides a GM (nominalization) of W, Y, Z, etc* are reminiscent of many academic-style genre-specific rhetorical strategies members of disciplines and genres consciously or unconsciously pick up and consistently subscribe to. The symbolic and semogenic system of GM within SFL whose cognitive role and stratificational place Halliday so strongly emphasized does exactly that; it emboldens the possible interfaces and synergies that can be struck up between rhetorical genre-specific moves/constructions and the cross-mapping GM probes and reveals as a system. The next most frequent type of GM was category 5 in which the adjective clause shifts to a verbal group. The following example was used by a NS writer:

- *Some **related issues** that may concern researchers and students include.....* (actual metaphorical wording)

- *Some **issues that are related** to this matter may concern... ..* (congruent unpacking)

The other two types of Ideational GM, used in roughly a similar way among both NS and NNS writers, were type 11 and 12 ('zero to entity' and 'zero to process'), although NS writers tended to use a higher proportion of type 11 than Iranian writers did. The following example shows the deployment of type 11:

- *We argue that at critical speech **stages of** child development, ME provides a better explanation.* (actual metaphorical wording)

In type 11, zero (the absence of any wording, or a zero semantic and sentential slot) changes to an entity or noun. This is again a case of nominalization as GM and points to the semantic powers of the device in the stratal cross-mapping, even when there is not a ready-made congruent starting point. The noun phrase *stages of* is considered to be unable to shift to any other word class. The next example manifests category 12 used by an NNS Iranian writer:

- *The present researchers **have** noticed that usually a number of BA and MA English major do not to continue their graduate studies.*

The next category was category 1 in which quality (Adjective) converts into an entity (noun), triggering, as GM requires, a re-ordering of syntactic and semantic elements, a cross-mapping:

- Hence, the validity of interpreting MLU as indexing knowledge separate from the growth of respiratory capacities can be evaluated. (actual metaphorical wording)
- Hence, one can evaluate whether interpreting MLU as indexing knowledge separate from the growth of respiratory capacities is valid.

In other words, the GM allows for the pattern *Hence, the validity of X can be evaluated*, while the congruent should settle for *Hence, one can evaluate whether X is valid*. The insignificant and intermittent deployment of subtypes of Ideational GM (types 4,7,9,10) was comparably in line with previous findings (Liardet, 2015, 2016; Taverniers, 2006; Derewianka, 2003; Sayfour, 2010). The similar use of type 9 across both groups which had the highest frequency among the Logical Ideational GM types could be another piece of evidence for the similar cognitive, disciplinary and genre-norms rhetorical awareness irrespective of native-speaker status. The following example uses this type of GM:

- This has often resulted in ad hoc approaches to implementation. (actual metaphorical wording)
- As a result of this, implementation is done by ad hoc approaches. (congruent unpacking)

This example is a type of logical Ideational GM used by a NS writer. In this logical type, the verbal group changes to conjunction or relator. According to Halliday (2014), these logical types of GM provide a rational chain of reasoning. This has extensive implications for other GMs in the sentence too; for instance, the unpacked version could read as:

- The result of this is approaches to implementation which are ad hoc

Or:

- As a result of this, implementation is approached through ad hoc ways, etc.

These actual data are evidence that, as Ravelli (2003), Painter (2003), Liardet (2016) and many others emphasize, GM might be the key to unravelling adult language development, literacy, maturity and eventual integration into genre-based communities of practice and discourse. The two least used types of logical GM were type 7 and type 10 in which relators change to adjective and preposition:

- Giving precedence to communication over form, CLT rejected previous strictly structural approaches to language pedagogy and opened the way for the use of authentic texts. (actual metaphorical wording)
- .....rejected approaches before itself that were strictly structural..... (unpacked congruent version).

Overall, the primary finding here points to the very established generic and rhetorical in-group norms subscribed to by both native-speaker and non-native speaker writers and professionals in the discipline.

## 7. Limitations and Delimitation

As explained in 4.3., we analysed only 50 RA introduction sections, driven by limitations to do with the practicality and feasibility of rigorous manual discourse analysis, coding Grammatical Metaphor being a deeply contextual and discourse-dependent affair (Thompson, 2014; Halliday & Matthiessen, 2014; Derewianka, 2003).

Since this study was limited to only the introduction sections of Applied Linguistics research articles, the way in which it was delimited points to a number of possible avenues of future research, to complement the picture offered in this article. For one thing, other sections of research articles could be analyzed and compared using the tools offered by GM and other systemic functional systems of meaning as evidenced in text produced by members of different speech communities. Secondly, the generic, textual and rhetorical use and, therefore, awareness of native-speaker and non-native

speaker writers can be compared in other academic disciplines too, which could reveal different patterns and realities. This model can also be used to qualify and measure the quality of RAs in other social contexts and discursive practices. Last but not least, for making the data more reliable, more numbers of RAs can be selected among native and non-native writers. Further research using GM in the analysis of other aspects of academic discourses could make for further insight into genre practices, genre-based EFL writing pedagogy, social and discursive cognition, and the discourse of Applied Linguistics, among other things.

## 8. Conclusion

SFL research has engaged with the varied demands of academic discourse, especially the linguistic descriptions of academic genres (Liardét, 2015). Schleppegrell (2001) discusses the commonalities academic discourse, particularly the use of “lexicalized and expanded noun phrases, and choosing grammatical features that project an authoritative stance”, all of which is of course the job of GM. This study was inspired by the insight that can be gained through comparative studies looking into social practice by the members of genre and discourse communities, revealing the textual rituals and discursive practices involved. As a mainstay in this study and this research paradigm in general, GM is one such tool strongly suited to this purpose.

Comparative intra-generic research in the area of ideational GM has been an under-researched topic, justifying studies on the rhetorical organization of academic delivery among academia in Applied Linguistics as a discourse community. This study addressed part of this gap by comparing NS and NNS academic writers in Applied Linguistics, members that belong to this generic circle on a diverse scale, since it would be beneficial to find out about the NNS academic writers' awareness of generic conventions, as compared with the international scene of academic writing conventions, the latter most likely setting the pace for the conventions of the genre to be followed further down the hierarchy by non-native speaker academic writers.

This study hypothesized and supported the fact that roughly proportionate scientific, semantic, philosophical, and cognitive ability and knowledge on the part of NS and NNS academic writers, irrespective of native speaker status, would be feeding into their academic writing artefacts and products, even if the non-native highly achieving academic writers in these humanities fields were doing it on a more conscious level than do the native ones (although even this is open to question). If Grammatical Metaphor is indeed the cross-stratal carrier and index of such adult socio-cognitive initiation and winning academic-writing genre-based semantics (Halliday & Matthiessen, 1999; Banks, 2003; Holme, 2003), then it is only natural that probing its use in identical highly academic circles would point to certain similarities in generic conventions. This line of reasoning drove our comparison of NS writers published in high-impact Applied Linguistics journals with NNS writers.

The findings suggested that, even though both groups of writers favoured Ideational Grammatical Metaphor as the prominent strategy, NS academic writers enjoyed a higher frequency of deployment of types of IGM overall, proportionate to the word size analysed. In agreement with previous research, the findings also showed that the similarity in GM use in NS and NNS academic writers could well be fuelled by Iranian writers' sophisticated level of required disciplinary knowledge about the scientific target writing norms desired and expected in the genre. Along the same lines, NNS Iranian writers proved successful in aligning themselves with the norms and rhetorical features of disciplinary and in-group meaning-making in the genre, increasing the force of such critical generic ingredients as membership status, insider credibility and in-group solidarity. Similarly, as GM could be considered a type of generic status quo in raising the quality of academic writing, according to Liardet (2016, 2015), becoming professional in a globalized world is to be able to transmit knowledge prosperously, necessitating the awareness of conventional tools which should be used in academic and scientific discourse, one primary ingredient of which is GM.

Scholars like Taverniers (2006), Liardet (2015), Sayfour (2010), and Arizavi et al (2015) agree with this insight, arguing as well that this similarity could have its roots in NS and NNS writers' similar cultural and cognitive packaging in choosing types of nominalization in comparison to other semiotic types, suggesting that native speaker status is trumped by membership (genre) status and

that fully professional and trained academic writers possess knowledge of academic genre conventions, originally laid down by native speaker writers in academia, enabling them to perform almost indistinguishably from fellow native speakers in professional academic writing and meaning making. This of course would benefit from more research.

In the corpus for this study, as would be expected in GM research and identification, the metaphorical choice proved to trigger added semogenic (expansion-related) resources in the scientific discourse the congruent version simply does NOT have access to (Halliday and Matthiessen, 1999; Thompson, 2014). The re-mapping and re-contrual GM achieves are reminiscent of many academic-style genre-specific rhetorical strategies members of disciplines and genres consciously or unconsciously pick up and consistently subscribe to. The symbolic and semogenic system of GM within SFL whose cognitive role and stratifunctional place Halliday so strongly emphasized does exactly that; it emboldens the possible interfaces and synergies that can be struck up between rhetorical genre-specific moves/constructions and the cross-mapping GM probes and reveals as a system. These actual data are evidence that, as Ravelli (2003), Painter (2003), Liardet (2016) and many others emphasize, GM might be the key to unravelling adult language development, literacy, maturity and eventual integration into genre-based communities of practice and discourse.

Studies such as this carry many pedagogical implications, for teachers, syllabus designers and would-be academic learners and writers trying to pick up the ropes of scientific and academic writing. According to Ravelli (2003), the necessity of teaching GM to undergraduate and graduate learners of specialized English is an indispensable pedagogical commitment of SFL practitioners aligned with Applied Linguistics interests; this can be conceived as involving the familiarization of these novice writers with the genre-related practices, conventions and rhetorical tools, among which GM figures prominently, in order to help them reach target academic and literacy goals in the disciplines (Vanderbergen et al., 2003). Martin (1992) and Ravelli (1985) argued that maintaining the context and meta-function in the teaching of GM amounts to a choice between congruent or metaphorical modes of text, making it central to pedagogy. Therefore, the inducement of the relationship between metaphor and writing modes and styles is essential (Vanderbergen et al., 2003). The findings of this research might be helpful for curriculum developers and syllabus designers, by way of a need for the inclusion of suitable writing instruction practices and norms which could not only familiarize EFL students with academic and scientific writing conventions, but work also to increase their awareness about the real lexicogrammatical and syntactic dimensions of re-mapping that powerful semantic and systemic processes like GM trigger at the level of the clause.

## References

- Alimohammadi, M. (2017). *Contrastive analysis of linguistics journals: A view from SFL* (Master's thesis, Zanjan University, Zanjan, Iran).
- Arizavi, S., Hayat, A., & Namdari, N. (2015). A Comparative Study of Research Article Discussion Sections of Local and International Applied Linguistic Journals. *Iranian Journal of Applied Linguistics*, 18(1), 1-28.
- Banks, D. (2003). The evolution of grammatical metaphor in scientific writing. In A.M. Simon - Vanderbergen, M. Taverniers, & L. Ravelli (Eds.), *Grammatical metaphor: Views from systemic functional linguistics* (pp. 185-220). Philadelphia, PA/ Amsterdam, Netherlands: John Benjamins.
- Behnam, B. & Kazemian, B. (2013). A comparative study of ideational Grammatical Metaphor in scientific and political texts. *Journal of Applied Linguistics and Applied Literature: Dynamics and Advances*. 1(1), 40-70.
- Cakir Sari, H & Kansu-Yetkiner, N. (2011). Grammatical Metaphor and Translation: A contrastive study of Turkish and English scientific discourse. In E. D. Adanur (Ed), *IDEA: Studies in English* (Chapter 44: 497-518). Cambridge: Cambridge Scholars Publishing.

- Derewianka, B. (2003). Grammatical metaphor in the transition to adolescence. In A.M. Simon-Vandenberg, M. Taverniers, & L. Ravelli (Eds.), *Grammatical metaphor: Views from systemic functional linguistics* (pp.185-220). Philadelphia, PA/ Amsterdam, Netherlands: John Benjamins.
- Dinagara, R. (2016). Grammatical Metaphor as a framework analysis of student's translation of discussion text: A case study of English departments students in public university. *Journal of English and education*, 4(1), 92-108.
- Ezeifeke, C. R. (2015). Grammatical Metaphor: In search of proficiency in Research Abstract writing. *SAGE Open*, January-March 2015: 1-14.
- Farahani, A. A. and Hadidi, Y. (2008). Semogenesis under Scrutiny: Grammatical Metaphor in Science and Modern Prose Fiction. *Iranian Journal of Applied Linguistics*, 11(2), 51-85.
- Freedman, A., & Medway, A. (1994). Locating genre studies: antecedents and prospects. In A. Freedman., and P. Medway. (Eds.), *Genre and the new rhetoric*. USA: Taylor and Francis.
- Gómez-González, M. & Doval- Suárez, M. (2005). On contrastive linguistics: trends, challenges and problems, In Lose Angeles, M, Gonzales, G, Susana M, & Suarez. D(Eds.). *The dynamics of language use* (1-25). Amsterdam/Philadelphia: John Benjamin Publication Company.
- Hadidi, Y. & Raghmi, A. (2012). A Comparative Study of Ideational Grammatical Metaphor in Business and Political Texts. *International Journal of Linguistics*, 4(2), 348-365.
- Halliday, M.A.K. (1993). Towards a language-based theory of learning. *Linguistics and Education*, 5(2),93-116.
- Matthiessen, C.M.I.M., Halliday, M.A.K. & Huang, G. (2009). *Systemic Functional Grammar: A first Step into the Theory*. Higher Education Publishing House.
- Halliday, M.A.K. (2004). *The Language of science: Volume 5 in the Collected Works of M. A. K. Halliday* (Edited by J. Webster). London: Continuum.
- Halliday, M.A.K. & Matthiessen, C.M.I.M. (1999). *Construing experience through meaning: A Language Based Approach to Cognition*. London: Continuum.
- Halliday, M.A.K. (2009). Ideas and new directions. In Halliday, M., & J, Webster (Eds.). *Continuum Companion to Systematic Functional Linguistics* (pp.12-59).
- Halliday, M.A.K. (2003). Ideas about linguistics. In J. Webster (Ed), *On Language and Linguistics* (pp. 74-92). London: Continuum.
- Halliday, M.A.K. (1985). *Introduction to Functional Grammar*. London: Routledge.
- Halliday, M.A.K. (1994). *Introduction to Functional Grammar*. London: Routledge.
- Halliday, M.A.K. & Matthiessen, C.M.I.M. (2004). *Introduction to Functional Grammar*. London: Routledge.
- Halliday, M.A.K. & Matthiessen, C.M.I.M. (2014). *Introduction to Functional Grammar*. London: Routledge.
- Hayvaert, L. (2003). Nominalization as grammatical metaphor: On the need for a radically Systemic and metafictional approach. In A. Simon-vandenberg., & M. Taverniers (Eds.). *Grammatical Metaphor: Views from Systemic Functional Linguistics*. Amsterdam: John Benjamins B.V.
- Holme, R. (2003). Grammatical metaphor as a cognitive construct. In A.M. Simon-Vandenberg, M. Taverniers, & L. Ravelli (Eds.), *Grammatical metaphor: Views from systemic functional linguistics* (pp.185-220). Philadelphia, PA/ Amsterdam, Netherlands: John Benjamins.
- Huang, Z & Yu, H.(2012). A contrastive study of grammatical metaphors in abstracts of Chinese MA theses and expert academic writing. *Journal of world languages*, 7(1), 199-222.



- Hyland, K. (2003). Genre-based pedagogies: A social response to Process. *Journal of Second Language Writing, 12*, 17-29.
- Hyland, K. (2002). Genre: Language, Context and Literacy. *Journal of Second Language Writing, 22*, 113- 135.
- Jackson, J. (Ed.) (2012). *The Rutledge Handbook of Language and Intercultural Communication*. USA: Taylor & Francis.
- Jalilfar, A., Saleh, E., & Don, A. (2017). Exploring nominalization in introduction and method section of Applied Linguistics Research Articles: A qualitative approach. *Iranian Journal of Applied Linguistics, Romanian Journal of English Studies, 14*(1), 64-80.
- Kaplan, R. (1966). *Cultural thought patterns in inter-cultural education*. USA: Blackwell publication.
- Kubata, R. (1999). Japanese Culture Constructed by Discourses: Implications for Applied Linguistics Research and ELT. *Tesol Quarterly, 33*(1), 9-35.
- Kubata, R. (2001). Discursive construction of the Images of U.S. Classrooms. *Tesol Quarterly, 35*(1), 9-38.
- Kubata, R., & Lehner, A. (2004). Toward critical contrastive rhetoric. *Journal of Second Language Writing, 13* (1), 7-27.
- Lakoff, G. & Johnson, M. (1980). *Metaphors We Live by*. Chicago: Chicago University Press.
- Lees, R.B. (1960/1968). *The Grammar of English Nominalizations*. Bloomington: Indiana.
- Malinowski, B. (1923), 'The problem of meaning in primitive languages', in C.K. Ogden and I. A. Richards (eds), *The Meaning of Meaning*. London: Routledge and Kegan Paul, pp. 296-336. University; The Hague: Mouton.
- Liardét, C. L. (2014). *A corpus-assisted study of Chinese EFL learners' development of academic literacy*, (Unpublished PhD Thesis, Sydney, Australia).
- Liardét, C. L. (2015). Academic literacy and Grammatical Metaphor: mapping development. *TESOL International Journal, 10*(1), 29-46.
- Liardét, C. L. (2016). Nominalization and grammatical metaphor: Elaborating the theory. *English for Specific Purposes, 44*(1), 16-29.
- Lillis, T. and Tuck, J. (2016). Academic literacies: a critical lens on writing and reading in the academy. In K. Hyland and P. Shaw (Eds), *The Routledge Handbook of English for Academic Purposes*. London and New York: Routledge.
- Martin, J. R. (1992). *English Text: System and structure*. Amsterdam: Benjamins.
- Martin, J. R. (2008). Incongruent and proud: de-vilifying nominalization. *Discourse and Society, 19*(6). 801-810.
- Martinez, L. (2001). Impersonality in the research article as revealed by analysis of the transitivity structure. *English for Specific Purposes, 20*(3), 227-247.
- Mauranen, A. (1993). Contrastive ESP rhetoric: Metatext in Finish-English economics texts. *English for Specific Purposes, 12*(1), 3-22.
- Mehrabi, Kh., Jalilfar, A., Hayati, A., & White, P. (2018). Investigating action nominalization in introduction section of Research Articles: A cross disciplinary study of hard and soft sciences. *Teaching English language. 12*(2), 1-26.
- Miller, C.R. (1994). Rhetorical community: The cultural basis of genre. In A. Freedman., & P. Medway (Eds.). *Genre and the new rhetoric* (pp. 57-67). USA: Taylor and Francis.
- Miller, C.R. (1984) 'Genre as Social Action', *Quarterly Journal of Speech, 70*(1), 151-76.

- Palmer, G.B. (1996). *Toward a Theory of Cultural Linguistics*. Austin (Texas): University of Texas Press.
- Ravelli, L. (2003). Renewal of connection: Integrating theory and practice in an understanding of Grammatical Metaphor. In A.M. Simon Vandenberg, M. Taveniers, & L. J. Ravelli. (Eds.). *Grammatical Metaphor: Views from Systemic Functional Linguistics* (pp.37-65). Amsterdam/Philadelphia: John Benjamin Publication Company.
- Ryshina-Pankova, M. (2015). A meaning-based approach to the study of complexity in L2 writing: The case of grammatical metaphor, *Journal of Second Language Writing*, 29(1) ,51-63.
- Sahrae, R.M & Yeganeh, Sh. (2020). (Persian Article). A Comparative Study of Grammatical Metaphor in Persian Research Articles Written over the Past Three Decades. *Nameye Farhangestan*, 17(4), 113-136.
- Sayfour, N. (2010). *SFL and ESP genre analysis of research articles in Iranian and English-American medical journals: A contrastive study* (unpublished doctoral dissertation). Tehran: Tehran University. Retrieved from <http://www.isfla.org/Systemics/Print/Theses/Sayfour2010.pdf>
- Sharifian, F. (2007). L1 cultural conceptualizations in L2 learning: The case of Persian-speaking learners of English Applied cultural linguistics. In F. Sharifian., & G. B. Palmer. (Eds), *Applied cultural linguistics* (pp.33-53). Amsterdam: John Benjamin publishing company.
- Taverniers, M. (2006). Grammatical metaphor and lexical metaphor: Different perspectives on semantic variation. *Neophilologus*, 90(2), 321-332.
- Velaquez-Mendoza, O. (2015). The role of grammatical metaphor in the development of advanced literacy in Spanish as a first, second and heritage language, *Functional Linguistics*, 2(7), 1-13.
- Xuan, W& Chen, Sh. (2019). A synthesis of research on grammatical metaphor: meta-data and content analysis, *Word*, 65 (4), 213-233.