
| RESEARCH ARTICLE

Specialized Academic Writing: Syntactic Complexity Rhetorical Functions in EFL Applied Linguistics Research Article Abstracts

HASSAN BOUKHRIS, PhD

Faculty of Languages, Letters and Arts, Ibn Tofail University, Kenitra, Morocco.

Corresponding Author: HASSAN BOUKHRIS, PhD, E-mail: hassan.boukhris@uit.ac.ma

ORCID: <https://orcid.org/0009-0003-9642-8449>

| ABSTRACT

The form-function relationship in academic writing has been evidenced to serve the communicative goals sought in scholarly research writing. Syntactically complex structures are linguistic devices that have been shown to realize different rhetorical functions in this genre, and syntactic complexity development has been demonstrated to follow pre-established stages and to reflect a nominal style at advanced levels. This study examines the extent to which Moroccan applied linguistics researchers use syntactically complex structures to accomplish communicative functions within a research article abstract. A corpus of 60 applied linguistics research article abstracts published between 2020 and 2025 was compiled, and the abstracts were annotated following the five rhetorical functions in Swales's Moves framework. The syntactic complexity features used to achieve each of these functions were identified and situated within Biber et al.'s syntactic complexity developmental stages. The data analysis yielded results indicating a uniform overreliance on attribute adjectives and nouns as noun pre-modifiers and prepositional phrases as noun post-modifiers (lower syntactic complexity developmental stage features) to accomplish rhetorical functions across all the abstract moves. Higher syntactic complexity stage features—nonfinite relative clauses and apposition—and nominalization, a central feature in scholarly research writing, were found to be underused. These findings call for the necessity of raising awareness of the form-function relationship in academic writing and the effectiveness of the strategic variable use of linguistic features to achieve communicative purposes in scholarly research writing characterized by a compressed style and the packing of information within sentences. This study provides an opportunity to advance the understanding of academic writing instruction and development in EFL contexts and offers insights into how to facilitate integration into disciplinary scholarly research writing communities of practice.

| KEYWORDS

Syntactic complexity; research article abstract moves; rhetorical functions; academic writing development; scholarly research writing; form-function in academic writing

| ARTICLE INFORMATION

ACCEPTED: 01 June 2026

PUBLISHED: 29 June 2026

DOI: 10.32996/ijllt.2026.9.7.3

1. Introduction

Introduced by Lave and Wenger (1991), the term *Community of Practice* (CoP) was coined to refer to learning in apprenticeships, where a group of people interact regularly to learn together and improve their skills. The coinage *Community of Practice* found broader applications to describe groups sharing knowledge within a field. Uriarte (2008) defines CoP as consisting of "members exchanging knowledge and, in the process, they build relationships and develop a sense of belonging and mutual commitment" (p. 55). According to Wenger et al. (2002), a CoP has the three essential elements, a domain of knowledge, a community of people who care about this domain, and the shared practice that they develop to be effective in their domain.

Closely related to a *Community of Practice* is the concept of a *Discourse Community* (DC) that Swales (1990) defines as how a group of people sharing the same concerns and goals use texts and language to accomplish work together. Genres, in Swales's

terms, are types of texts and special use of language that emerge in response to typical and recurring rhetorical needs within a discourse community. Discourse communities develop conventions for their genres that are recognizable to their members and that facilitate the members interaction in seeking to achieve common goals. A research community in a field of study, such as applied linguistics, is an example of a CoP—and a DC. Researchers affiliated with such discourse communities and engaged in scholarly conversations to advance knowledge regarding different topics abide by the DC conventions. One of such conventions is the IMRD structure for research articles (Introduction-Method-Results-Discussion).

Members of a research CoP present their contributions to scholarly conversations in the IMRD conventionalized format. Yet, a further challenging norm is to present a synopsis of a research article in a concise, typically 150 to 250 words, single-paragraph abstract, which encompasses parts that mirror the research paper components. Syntactic complexity—incorporation of syntactic structures to pack more information in a sentence—is an effective means for achieving the conciseness writing an abstract requires. Halliday (1993d) refers to this packing of information as lexical density: the density of information in a passage of a text. Researchers seeking affiliation with a discourse community are expected to abide by this genre specificity. Yet, they may encounter challenges deploying syntactic complexity devices to achieve this information density, especially those who have learned English as a foreign language. Hence, this study investigates to what extent Moroccan applied linguistics researchers use syntactic complexity devices to achieve the rhetorical functions of a research article abstract.

2. Literature review

The macro-level IMRD generic structure of a research article (RA) has been taxonomized into micro-level *moves* within each of the RA sections. These *moves* reflect rhetorical functions aiming to achieve the research aims. Within the abstract, the conciseness requirement calls for syntactic complexity and lexical density to incorporate extensive information using a finite number of words. Different syntactic complexity devices that serve this aim have been identified and discussed in the literature. The acquisition and use of these devices have been shown to correlate with L2 proficiency and academic level and to follow a developmental trajectory.

2.1. Rhetorical functions in a research article abstract

There has been scholarship consensus on the effectiveness of the *Move Analysis* as a research article form-function analytical scheme. The aim of adopting this scheme is to identify the moves and steps within research article sections that reflect the use of linguistic features fulfilling the communicative functions interpretable by discourse community members in a highly predictable manner (Moreno & Swales, 2017). Moves are “discoursal or rhetorical units performing coherent communicative functions in texts,” and steps are move components that “together, or in some combination, realize the move” (Swales, 2004, pp. 228-229). Hence, the function of a step is to “primarily achieve the purpose of the move to which it belongs” (Biber et al., 2007, p. 24).

Accordingly, Hyland (2000) proposes a five-move abstract generic structure framework. The moves in this model are introduction, purpose, method, product, and conclusion, as shown in Table 1. These moves are realized in a series of steps that, collectively, serve the linguistic realization of the rhetorical function of the move to which they belong. We can see how this framework affords recognizing the predictable pattern academic writing takes according to genre. More importantly, this framework highlights how the normalized pattern of form in scholarly research writing genres serves the ultimate purpose of demonstrating to peers how new knowledge can be added based on gaps in the existing knowledge within a current research context, using sound methodology (Sutton, 2000).

Table 1. Hyland (2000) Abstract Move-and-Step Model

Move	Step	Function
1 Introduction	1	Arguing for topic significance
	2	Making topic generalization
	3	Defining the key term(s)
	4	Identifying gap
2 Purpose	1	Stating general and/or specific purpose of the research including the hypothesis
3 Method	1	Describing participants/data sources
	2	Describing instrument(s)
	3	Describing procedure and context
4 Product	1	Describing the main specific findings of the research
5 Conclusion	1	Deducing conclusion

2	Evaluating the significance of the research
3	Stating limitation
4	Presenting recommendation or implication

Another model that equally presents a research article abstract in five parts reflecting five communicative purposes is Swales’s (2004) framework. The five moves in this model are: (1) Background/Introduction/Situation, (2) Aim/Purpose, (3) Method/Material/Subjects/Procedures, (4) Results/Findings, and (5) Discussion/Conclusion/Significance (Table 2). Similarly to Hyland’s model, this framework captures the genre-conventionalized approach to the linguistic realization of a synopsis of the researcher’s argument in scholarly research discourse. To succinctly incorporate these agreed-upon rhetorical moves in a RA abstract, the use of syntactically complex sentences is thus useful.

Table 2. Swales’s (2004) RA Abstract Move-Step Structure Framework

Move	Function
1 Background/Introduction/Situation	To tell the reader what the writer(s) know about the topic
2 Aim/Purpose	To explain what the research is about
3 Method/Material/Subjects/Procedures	To explain how the research is conducted
4 Results/Findings	To tell the reader what the researcher(s) discovered
5 Discussion/Conclusion/Significance	To discuss what the results mean and tell the reader what conclusions can be inferred from the research

2.2. Syntactic complexity

Ortega (2003) defines syntactic complexity (SC) as “the range of forms that surface in language production and the degree of sophistication of such forms” (p. 492). Ortega (2015) further refers to SC as “the range and the sophistication of grammatical resources exhibited in language production” and “the variety, diversity and elaborateness of deployed grammatical features” (p. 82). SC has been measured in terms of the length of production units, such as the mean length of T-unit (MLT) and the mean length of clause (MLC) and the overall sentence complexity—the number of clauses per sentence (C/S). A T-unit is a main clause and all the subordinate clauses and non-clausal structures that are attached to or embedded in it (Hunt, 1964). Other indices have been used in the literature to operationalize SC. For instance, Lu (2010) proposes the amount of subordination indices, the amount of coordination indices, and the degree of phrasal sophistication indices. The amount of subordination indices are the number of clauses per T-unit (C/T), the number of complex T-units per T-unit (CT/T), the number of dependent clauses per clause (DC/C), and the number of dependent clauses per T-unit (DC/T). The amount of coordination indices are the number of coordinated phrases per clause (CP/C), the number of coordinated phrases per T-unit (CP/T), and the number of T-units per sentence (T/S). The degree of phrasal sophistication indices are the number of complex nominals per clause (CN/C), the number of complex nominals per T-unit (CN/T), and the number of verb phrases per T-unit (VP/T).

Another set of SC indices is proposed by Biber et al. (2011). Included in these SC operationalization indices are finite adverbial clauses (*because* clause - *if* clause - *although* clause), finite complement clauses (verb + *that* clause - verb + *WH* clause adjective + *that* clause - noun + *that* clause), nonfinite adverbial clauses (*to* adverbial clause), nonfinite complement clauses (verb + *-ing* clause - verb + *to* clause adjective + *-ing* clause - adjective + *to* clause - noun + *of* + *-ing* clause - noun + *to* clause), nonfinite noun modifier clauses (nonfinite relative clause), adverbials (adverbs as adverbials - prepositional phrases as adverbials), and noun modifiers (attributive adjectives - nouns as nominal premodifiers - prepositional phrases as nominal modifiers).

Kyle (2016) and Crossley and Kyle (2018) present yet another set of SC indices—fine-grained indices extractable by the TAASSC automatic tool. Crossley and Kyle taxonomize syntactic complexity indices into fine-grained clausal and phrasal indices and syntactic sophistication usage-based indices. These SC indices calculate the average number of particular structures per clause and dependents per clause (fine-grained clausal measures), seven noun phrase types, ten phrasal dependent types (fine-grained phrasal measures), and verb-argument constructions (VACs). Although syntactic complexity has been operationalized differently by scholarship, it has been demonstrated to correlate with L2 writing proficiency and the academic development level and has been shown to follow developmental stages.

2.3. Syntactic complexity development

An extensive body of research has investigated syntactic complexity measures as metrics for academic writing proficiency and development in the English as a second language context. These studies have concluded that the deployment of syntactic complexity correlates positively with L2 academic writing proficiency (Ortega, 2003; Lu, 2011; Ai & Lu, 2013; Kim, 2014; Crossley & McNamara, 2014; Cushing Weigle et al, 2015; Lu & Ai, 2015). On the other hand, Biber et al. (2011) have demonstrated through a corpus-based study that phrasal complexity is a characteristic of advanced L2 English academic writing and have established a general pattern of syntactic complexity development. This pattern reflects an initial stage (finite dependent clauses functioning as constituents in other clauses), an intermediate stage (nonfinite dependent clauses and phrases functioning as constituents in other clauses), and a final stage (dense use of phrasal—non-clausal—dependent structures that function as constituents in noun phrases). Biber et al. propose the more detailed SC developmental stages shown in Table 3.

Table 3. Biber et al. (2011) Hypothesized Syntactic Complexity Developmental Stages

Stage	Grammatical Structures
Stage 1	. Finite complement clauses (that and WH) controlled by extremely common verbs (e.g., think, know, say)
Stage 2	. Finite complement clauses controlled by a wider set of verbs . Finite adverbial clauses . Nonfinite complement clauses, controlled by common verbs (especially want) . Phrasal embedding in the clause: adverbs as adverbials . Simple phrasal embedding in the noun phrase: attributive adjectives
Stage 3	. Phrasal embedding in the clause: prepositional phrases as adverbials . Finite complement clauses controlled by adjectives . Nonfinite complement clauses controlled by a wider set of verbs . That relative clauses, especially with animate head nouns . Simple phrasal embedding in the noun phrase: nouns as premodifiers . Possessive nouns as premodifiers . Of phrases as postmodifiers . Simple PPs as postmodifiers, especially with prepositions other than <i>of</i> when they have concrete/ locative meanings
Stage 4	. Nonfinite complement clauses controlled by adjectives . Extraposed complement clauses . Nonfinite relative clauses . More phrasal embedding in the NP: attributive adjectives, nouns as premodifiers . Simple PPs as postmodifiers, especially with prepositions other than <i>of</i> when they have abstract meanings
Stage 5	. Preposition + nonfinite complement clause . Complement clauses controlled by nouns . Appositive noun phrases . Extensive phrasal embedding in the NP: multiple prepositional phrases as postmodifiers, with levels of embedding

In light of the literature review presented in this section, the aim of the present study is to investigate to what extent Moroccan applied linguistics researchers use syntactic complexity devices to achieve the rhetorical functions of a research article abstract. To achieve this aim, a corpus of research article abstracts was compiled, annotated according to rhetorical moves, and analyzed to identify syntactic complexity features.

3. Methodology

3.1. Corpus design

The data in this study was collected from 60 RAs published by Moroccan applied linguistics researchers in international open-access journals between 2020 and 2025. A corpus of these RAs abstracts was compiled—10 RA abstracts randomly selected for

each year from 2020 to 2025. The criteria for inclusion of the abstracts were that the articles are research articles in the applied linguistics field. No literature review or methodology articles were included.

3.2. Corpus annotation

The RA abstracts in the corpus were manually annotated following Swales’s (2004) model. Each of the five moves was assigned a code (M1-M5), as reported in Table 4. A rhetorical move tag was attached to any sentence—or group of sentences—realizing any of the rhetorical moves in Swales’s framework. Abstracts not including any of these moves were tagged with a code including the missing move code and the annotation (0).

Table 4. Rhetorical Annotation Scheme of the Corpus

Move	Code	Code if missing
1 Background/Introduction/Situation	M1	M1(0)
2 Aim/Purpose	M2	M2(0)
3 Method/Material/Subjects/Procedures	M3	M3(0)
4 Results/Findings	M4	M4(0)
5 Discussion/Conclusion/Significance	M5	M5(0)

3.3. Syntactic complexity indices

Scholarship has demonstrated that scholarly research writing is structurally compressed and characterized by a high degree of phrasal complexity and more phrasal modifiers embedded in noun phrases. Research has also indicated that developed L2 writing reflects moving away from clausal complexity to phrasal complexity. Accordingly, the indices used in this study were eclectically selected and include subordination (dependent clauses); coordination (coordinate phrases); nominalization (a noun that stands for a state, a situation, or a process); noun modification (through attribute adjectives, nouns, prepositional phrases, finite and non-finite relative clauses, or apposition—appositive noun phrases as noun post-modifiers) (Table 5). Sample sentences reflecting the use of these syntactic complexity indices are provided in Examples 1 through 8, respectively.

Table 5. Syntactic Complexity Indices Used in this Study

Indices	Code	Description
Dependent clauses	DC	Number of dependent clauses
Coordinate phrases	CP	Number of coordinate phrases
Nominalization	NOM	Number of nominalizations
Attribute adjectives	AADJ	Number of adjectives pre-modifying a noun
Nominal modification	NN	Number of nouns that pre-modify another noun
Prepositional phrases	PREP	Number of prepositional phrases as noun postmodifiers
Relative clauses	RCL	Number of relative clauses postmodifying a noun
Apposition	APPO	Number of appositive noun phrases

Examples 1: Dependent clauses (DC)

a. While the participants in the experimental group were taught writing with critical thinking skills, the others were taught writing with no reference to these skills.

b. Although this field of study has received much attention worldwide, investigations of CT in Morocco are scarce.

c. The results indicate that visual components significantly and positively affect vocabulary acquisition and grammatical comprehension, **while auditory elements enhance listening skills and pronunciation.**

Examples 2: Coordinate phrases (CP)

a. Oral and written proficiency measures were **adopted and administered by the researcher himself and with the help of** participating teachers in addition to language supervisors.

- b. The study attempts to investigate **native speakers' and non-native speakers' perceptions** of writing quality.
- c. They noted that writing should be **easy to read and respond to the readers' expectations**.

Examples 3: Nominalization (NOM)

- a. The **relevance** of **autonomy** stems from **the need** to empower learners with the necessary life skills to succeed both in their personal and professional lives.
- b. Findings revealed a great **awareness** of the **importance** of learner **autonomy** among Moroccan university students.
- c. The second questionnaire section targeted the **willingness** and actual **participation** of students inside the classroom.

Examples 4: Attribute adjectives (AADJ)

- a. The study incorporates a **quantitative** as well as a **qualitative** approach and has used a proficiency test, questionnaires besides an **observational** instrument to collect data from respondents.
- b. University aims to contribute to shaping **active** citizens possessing **transferable** power skills.
- c. The training resulted in an **increased** critical thinking ability.

Examples 5: Nominal modification (NN)

- a. The explicit instruction of PROBs is feasible at the early stages of **literacy acquisition**.
- b. This indicates its limited role in fostering **learner autonomy**.
- c. It highlighted nuanced issues related to **teacher identity** and **classroom roles**.

Examples 6: Prepositional phrases (PREP)

- a. This paper explores the relationship that may exist between the students' motivational orientation and their participation **in the classroom**.
- b. It is characterized by the learner's positive attitudes **towards the target language group**.
- c. Concerns were raised about content inaccuracy, plagiarism risks, lack **of training**, and misalignment **with local curricula**.

Examples 7: Relative clauses (RLC)

- a. The data, **which has been quantitatively analyzed**, indicates that the experimental group significantly outperformed the control group.
- b. In the 21st century, **where information has become easily available and accessible**, education has shifted its attention to teaching students how to process and think critically.
- c. We are speaking about critical thinking movement **whose benefits are much discussed** in educational curricula.

Examples 8: Apposition (APPO)

- a. The control group was involved in taking the pre-test and the post-test **(with no prior assistance)** for comparison purposes.
- b. The focus was on integrated feedback **(form and content)** as an effective way to respond to students' written work.

c. The errors were taken from 100 essays of composition of two academic levels (**first- and third-year students**).

4. Results

The analysis of the texts in the corpus files revealed that a number of abstracts in the corpus do not include all the five rhetorical moves, as reported in Table 6. In fact, 49% of the abstracts do not include the Background/Introduction/Situation move (M1)—29 abstracts out of 60. Likewise, the M5 move—Discussion/Conclusion/Significance—is not included in 40% of the abstracts in the corpus (24 abstracts out of 60).

Table 6. Number of Rhetorical Moves in the Corpus

	M1	M2	M3	M4	M5
Count	31	60	60	60	36
Percentage	51%	100%	100%	100%	60%
Missing	29	0	0	0	24
Percentage	49%	0%	0%	0%	40%
Total	60	60	60	60	60

Results also indicate a disproportionate use of syntactic complexity features to accomplish the rhetorical functions of the abstract moves (Table 7). The data in Table 7 indicates that, in aggregate, attribute adjectives, prepositional phrases, and nouns modifying other nouns are the most frequent syntactic complexity devices used in the corpus texts, respectively (AADJ: 592, PREP: 323, NN: 310). The data in Table 7 also shows that the authors of the abstracts in the corpus resorted to using coordinate phrases to a lesser extent (222 CP). Nominalization, dependent clauses, relative clauses, and apposition, on the other hand, were deployed to a much lesser extent (NOM: 78; DC: 59; RLC:31; APPO: 30). Interestingly, the relative clauses used in these abstracts are predominately finite, as can be seen in Examples 7. These finite relative clauses are tensed and reflect the structure: Relative pronoun + Subject + Verb that is marked for tense (a conjugated verb). Non-finite relative clauses—untensed—were scarce in the corpus abstracts. These are relative clauses that do not include a conjugated verb and are either *-ing*, *-ed*, or *to infinitive* clauses, as is discussed in more detail in the subsequent section.

Table 7. Number of Occurrences of Syntactic Complexity Indices per Rhetorical Move

Moves	Syntactic Complexity Indices							
	DC	CP	NOM	AADJ	NN	PREP	RCL	APPO
M1	11	46	12	105	38	54	12	1
M2	6	34	15	132	60	122	6	8
M3	16	52	13	126	78	83	9	14
M4	22	61	23	149	87	116	1	6
M5	4	29	15	80	47	48	3	1
Total	59	222	78	592	310	323	31	30

Moreover, moves M2, M3, and M4 incorporate the most syntactic complexity, realizing the functions background, aim, and results, respectively. More specifically, the authors of the abstracts in the corpus used AADJ (132) and PREP (122) as the primary syntactic complexity means to announce the aim of the study (M2). The other syntactic complexity features were used by these writers to a limited extent (DC: 6; CP: 34; NOM: 15; NN: 60; RCL: 6; APPO: 8). These authors equally used AADJ (126) and PREP (83) in addition to NN (78) as the main syntactic complexity features to communicate how the study had been conducted (M3: Method/Material/Subjects/Procedures). CP (52), DC (16), APPO (14), NOM (13), and RC (9) were used much less frequently in the M3 move. To realize the communicative purposes of the M4 move—communicating the results or findings to the reader—the authors deployed the syntactic complexity features AADJ (149), PREP (116), and NN (87) much more frequently than CP (61), NOM (23), DC (22), APPO (6), and RCL (1).

5. Discussion

Results indicate that the EFL researchers, authors of the applied linguistics research articles abstracts explored in this study naturally deployed more syntactic complexity features in the M2, M3, and M4 than in the M1 and M5 moves. Announcing the aim of the study (M2), indicating how the research was carried out (M3), and communicating to the reader what results or findings were obtained (M4) are at the core of any research and encompass most of the information to be included in an abstract. On the other hand, in contrast to what Lu et al. (2020) found, the results show that these authors uniformly favor attribute adjectives (AADJ) as noun premodifiers, prepositional phrases (PREP) as noun postmodifiers, and nouns as noun premodifiers (NN) as syntactic complexity devices to pack information across all the five abstract rhetorical moves. Lu et al. (2020) reported significant variation in syntactic complexity deployment across the rhetorical move steps, indicating differentiated complex syntactic structure use according to different rhetorical functions.

Equally telling is the predominance of attribute adjectives, prepositional phrases, and noun modification in the corpus abstracts. Situated according to Biber et al.'s (2011) syntactic complexity developmental stages, these features reflect lower development and proficiency (Stages 2 and 3). The heavy reliance on these structures may indicate underdeveloped scholarly research writing with regard to syntactic complexity. Higher syntactic complexity developmental stage indices are scant in the abstracts explored in this research. Nonfinite relative clauses (Stage 4) were found to be rare in the corpus files. These syntactic structures afford the linguistic realization and the compressed style and economy characteristic of scholarly research writing. Consider the examples A, B, and C, illustrating these structures use to postmodify a noun.

- (A) *-ing* nonfinite relative clause: Instructors provide feedback **highlighting grammatical errors** in the students' final draft.
- (B) Past participle *-ed* nonfinite relative clause: Survey responses **collected during the first session** indicate a high level of motivation among students.
- (C) Infinitive relative clause: The researchers devised a rubric **to assess student fluency** during oral presentations.

In like manner, apposition (Stage 5) was rarely used to realize the rhetorical functions in the studied abstracts (1 in M1; 8 in M2; 14 in M3; 6 in M4; 1 in M5). Apposition realizes conciseness by providing a definition, clarification, specification, or additional information immediately after a noun for better meaning-making, rather than providing this information in a separate sentence further in the discourse. This is thus an effective syntactic device allowing for economy and packing of information. Furthermore, only 78 occurrences of nominalization—the process of turning verbs, adjectives, or adverbs into nouns—were identified in the 60 abstracts (1.3 nominalizations per abstract and 0.26 per move). This nominalization scantiness reflects an underuse of a vital functional syntactic complexity device. Nominalization realizes *grammatical metaphor* (GM) in Halliday's (1985) terms. Let us consider Example (D), with a single word standing for an entire situation or process. This example reflects the conciseness affordances of nominalization that can be utilized to achieve the rhetorical moves in a research article abstract.

- (D) (1) When teachers illustrate what they are trying to explain, learners understand better.

(2) **Illustration** leads to better **understanding**.

When teachers illustrate what they are trying to explain → **illustration**
students understand → **understanding** (Boukhris & Sakale, 2025).

6. Conclusion

This study examined the use of syntactic complexity to accomplish the rhetorical functions within a research article abstract in an EFL context. Guided by the moves analytical framework proposed by Swales (2004) and premised on Biber et al.'s (2011) syntactic complexity developmental stages, the study was conducted with the aim of identifying and assessing the syntactic complexity features deployed to realize discursual functions. Since a scholarly research paper abstract is a coherent text aiming to concisely communicate the rationale, design, findings, and implications to the reader, this study was carried out within the form-function research orientation. This relationship between linguistic features and rhetorical functions in meaning-making in scholarly research writing has been confirmed in the literature (Parkinson & Musgrave, 2014; Lu et al., 2020).

Advanced academic writing is characterized by more phrasal than clausal complexity and by nominalization. That is, developed academic prose reflects extensive use of nominal groups, including a pre- and postmodified head noun. Halliday (1993) highlights how a nominal group contributes to text density in meaning-making. The function of this linguistic compression, realized by phrasal complexity in scholarly research writing, is valued and expected by readers affiliated with this genre and discourse community (Biber & Gray, 2010).

The results in this investigation indicate that some researchers in EFL contexts may, surprisingly, omit fundamental moves of a research article. The results also show that these researchers tend to unvaryingly use lower developmental stage syntactic complexity features to accomplish different rhetorical functions of a research article abstract. This may stem from academic

and scholarly research writing underdevelopment and unawareness of the linguistic and conventionalized norms of different writing genres. An important implication of these findings is their usefulness in affording the acquisition of different academic registers. That is, these insights could guide scaffolding into awareness and mastery of the abstract writing sub-genre of the scholarly research writing genre. Additionally, the adoption of the form-function view and the strategic use of syntactic complexity to achieve functions in texts would be beneficial in pedagogy seeking academic writing development. The focus in this study was limited to applied linguistics research article abstracts. Research along the syntactic complexity and rhetorical functions avenue could be conducted in other disciplines.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References

- [1] Ai, H., & Lu, X. (2013). A corpus-based comparison of syntactic complexity in NNS and NS university students' writing. In A. Díaz-Negrillo, N. Ballier, & P. Thompson, (Eds.), *Automatic treatment and analysis of learner corpus data* (pp. 249–264). Studies in corpus linguistics. <https://doi.org/10.1075/scl.59.15ai>.
- [2] Biber, D. Connor, U., & Upton T. A. (2007). *Discourse on the move: Using corpus analysis to describe discourse structure*. John Benjamins.
- [3] Biber, D., & Gray, B. (2010). Challenging stereotypes about academic writing: Complexity, elaboration, explicitness. *Journal of English for Academic Purposes*, 9, 2–20. DOI:10.1016/j.jeap.2010.01.001.
- [4] Biber, D., Gray, B., & Poonpon, K. (2011). Should we use characteristics of conversation to measure grammatical complexity in L2 writing development? *TESOL Quarterly*, 45(1), 5-35. <https://doi.org/10.5054/tq.2011.244483>.
- [5] Boukhris, H., & Sakale, S. (2025). Nominalization as a feature of functional morpho-syntactic complexity in EFL medical scholarly research writing. *Journal of English Language Teaching and Applied Linguistics*, 7(8), 88–96. <https://doi.org/10.32996/jeltal.2025.7.8.10>
- [6] Crossley, S. A., & McNamara, D. S. (2014). Does writing development equal writing quality? A computational investigation of syntactic complexity in L2 learners. *Journal of Second Language Writing*, 26, 66-79. <https://doi.org/10.1016/j.jslw.2014.09.006>
- [7] Crossley, S. A., & Kyle, K. (2018). Analyzing spoken and written discourse: A role for natural language processing tools. In A. Phakiti, P. De Costa, L. Plonsky, & S. Starfield (Eds.). *The Palgrave Handbook of Applied Linguistics Research Methodology* (pp. 567-594). Palgrave Macmillan. https://doi.org/10.1057/978-1-137-59900-1_25.
- [8] Cushing-Weigle, S., Yang, W., & Lu, X. (2015). Different topics, different discourse: Relationships among writing topic, measures of syntactic complexity, and judgments of writing quality. *Journal of Second Language Writing*, 28(2), 53-67. <https://doi.org/10.1016/j.jslw.2015.02.002>.
- [9] Halliday, M. A. K. (1985). *An Introduction to Functional Grammar (1st ed.)*. Edward Arnold.
- [10] Halliday, M. A.K. (1993d). Some grammatical problems in scientific English. In M. A. K. Halliday & J. R. Martin (Eds.), *Writing science: Literacy and discursive*. <https://doi.org/10.1075/aralss.6.02hal>.
- [11] Hunt, K. (1964). Early blooming and late blooming in syntactic structures. In C.R. Cooper & L. Odell (Eds.) *Evaluating writing: Describing, measuring, and judging*, (pp. 91-104). National Council of Teachers of English.
- [12] Hyland, K. (2000). *Disciplinary discourses: Social interactions in academic writing*. Longman.
- [13] Kim, J. Y. (2014). Predicting L2 writing proficiency using linguistic complexity measures: A corpus-based study. *English Teaching*, 69(4), 27-51. DOI:10.15858/engtea.69.4.201412.27.
- [14] Kyle, K. (2016). Measuring syntactic development in L2 writing: Fine grained indices of syntactic complexity and usage-based indices of syntactic sophistication. Georgia State University. Retrieved from http://scholarworks.gsu.edu/ales_diss/35/
- [15] Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511815355>.
- [16] Lu, X. (2010). Automatic analysis of syntactic complexity in second language writing. *International Journal of Corpus Linguistics*, 15(4), 474-496. <https://doi.org/10.1075/ijcl.15.4.02lu>.
- [17] Lu, X. (2011). A corpus-based evaluation of syntactic complexity measures as indices of college-level ESL writers' language development. *TESOL Quarterly*, 45(1), 36–62. <https://doi.org/10.5054/tq.2011.240859>.
- [18] Lu, X., & Ai, H. (2015). Syntactic complexity in college-level English writing: Differences among writers with diverse L1 backgrounds. *Journal of Second Language Writing*, 29(3), 16-27. <https://doi.org/10.1016/j.jslw.2015.06.003>.
- [19] Lu, X., Casal, J. E., & Liu, Y. (2020). The rhetorical functions of syntactically complex sentences in social science research article introductions. *Journal of English for Academic Purposes*, 44, Article 100832. <https://doi.org/10.1016/j.jeap.2019.100832>.

- [20] Moreno, A., & Swales, J. M. (2017). Strengthening moves analysis methodology towards bridging the function-form gap. *English for Academic Purposes*, 50, 40-6. <https://doi.org/10.1016/j.esp.2017.11.006>.
- [21] Ortega, L. (2003). Syntactic complexity measures and their relationship to L2 proficiency: A research synthesis of college-level L2 writing. *Applied Linguistics*, 24(4), 492–518. <https://doi.org/10.1093/applin/24.4.492>.
- [22] Ortega, L. (2015). Syntactic complexity in L2 writing: Progress and expansion. *Journal of Second Language Writing*, 20, 2-94. <https://doi.org/10.1016/j.jslw.2015.06.008>
- [23] Parkinson, J., & Musgrave, J. (2014). Development of noun phrase complexity in the writing of English for Academic Purposes students. *Journal of English for Academic Purposes*, 14, 48-59. [10.1016/j.jeap.2013.12.001](https://doi.org/10.1016/j.jeap.2013.12.001).
- [24] Swales, J. M. (1990). *Genre analysis: English in academic and research settings*. Cambridge University Press.
- [25] Swales, J. M. (2004). *Research genres: Exploration and applications*. Cambridge University Press.
- [26] Sutton, B. (2000). Swales's "Moves" and the research paper assignment. *Teaching English in the Two-Year College*, 27(4), 446-451.
- [27] Uriarte, F. (2008). *Introduction to knowledge management*. Asean Foundation.
- [28] Wenger-Trayner, E., McDermott, R. A. & Snyder, W. M. (2002). *Cultivating communities of practice: A guide to managing knowledge*. Harvard Business School Press.