SYNTACTIC COMPLEXITY IN ENGINEERING ESP MATERIALS: A CASE STUDY OF OXFORD ENGLISH FOR ELECTRICAL AND MECHANICAL ENGINEERING

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Abstract

This study examined the syntactic complexity of reading materials in English for Specific Purposes (ESP) and its influence on the reading comprehension of B1-level engineering students. Five units from Oxford English for Electrical and Mechanical Engineering were analyzed in terms of sentence length, use of passive constructions, and frequency of nominalization. The findings showed notable variation across units: average sentence length ranged from 12.8 to 24.2 words, with some sentences exceeding 30 words; passive constructions accounted for up to 40% of sentences; and nominalization density reached 11% in the most structurally dense text. Such features may hinder learners' ability to follow information flow and interpret technical vocabulary. The findings highlight syntactic complexity as an important but often overlooked factor in ESP reading and suggest the need for guided reading, explicit sentence-level analysis, and focused support for passive and nominalized forms. Further research should examine broader texts and learner groups.

Keywords: *syntactic complexity, English for Specific Purposes (ESP), reading comprehension, engineering students, nominalization, passive constructions.*

Độ phức tạp cú pháp trong tài liệu tiếng Anh chuyên ngành kỹ thuật: Một nghiên cứu trường hợp về giáo trình Oxford English for Electrical and Mechanical Engineering

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Tóm tắt

Nghiên cứu này phân tích độ phức tạp cú pháp của tài liệu đọc trong Tiếng Anh chuyên ngành (ESP) và ảnh hưởng của nó đến khả năng đọc hiểu của sinh viên kỹ thuật trình độ B1. Năm bài trong Oxford English for Electrical and Mechanical Engineering được phân tích dựa trên độ dài câu, cấu trúc bị động và danh hóa. Kết quả cho thấy sự khác biệt rõ rệt giữa các bài: độ dài câu trung bình dao động từ 12,8 đến 24,2 từ; một số câu vượt 30 từ; câu bị động chiếm tới 40%; và mật độ danh hóa đạt 11% ở văn bản phức tạp nhất. Những đặc điểm này có thể gây khó khăn trong việc theo dõi mạch thông tin và hiểu thuật ngữ chuyên môn. Nghiên cứu nhấn mạnh độ phức tạp cú pháp là yếu tố quan trọng nhưng thường bị xem nhẹ trong đọc hiểu ESP và gợi ý cần có hỗ trợ đọc và phân tích cấu trúc phù hợp.

Từ khoá: *độ phức tạp cú pháp, tiếng Anh chuyên ngành (ESP), đọc hiểu, sinh viên kỹ thuật, danh hóa, cấu trúc bị động.*

I. Introduction

English for Specific Purposes (ESP) plays an increasingly important role in higher education, particularly in non-language majors where students must develop discipline-relevant English skills (Arnó-Macià et al., 2020). In engineering education, reading comprehension is essential because students rely on English to access technical documentation and academic materials (Pritchard & Nasr, 2004). However, ESP texts often present substantial challenges due to their syntactic complexity, including extended noun phrases, passive constructions, and embedded clauses, which increase processing demands and may hinder comprehension for lower-proficiency learners (Graesser et al., 2011; Rahimi & Rezaei, 2011). Syntactic complexity also influences how information is organized and processed, thereby shaping learners' ability to construct meaning from text (Li et al., 2025).

Although lexical difficulty in ESP has been widely examined, the role of syntactic complexity remains comparatively underexplored. This issue is pedagogically significant because instructors frequently adopt established ESP textbooks without systematic evaluation of their linguistic demands (Wu et al., 2020). Importantly, many widely used technical ESP materials, including earlier foundational textbooks, continue to shape classroom practice and reflect enduring features

of engineering discourse. Therefore, examining their syntactic characteristics remains relevant for understanding the linguistic challenges faced by current learners.

This study investigates the syntactic complexity of reading materials from Oxford English for Electrical and Mechanical Engineering, a textbook still used in engineering ESP contexts, to explore how such features may affect B1-level students' reading comprehension and to propose pedagogically grounded instructional support. The study addresses three research questions:

(1). What is the level of syntactic complexity in the selected ESP reading materials?

(2). How might this syntactic complexity affect the reading comprehension of B1-level students?

(3). What teaching strategies can be recommended to improve the teaching of reading comprehension in this context?

2. Literature Review

2.1. Reading skills in English for Specific Purposes (ESP)

Reading is a central skill in English for Specific Purposes (ESP) because it provides learners with access to discipline-specific knowledge encoded in English-medium texts (Bojovic, 2010). Unlike general English materials, ESP texts are typically information-dense and structurally complex, often presenting specialized concepts through tightly organized discourse and field-specific terminology (Tran & Duong, 2018). Consequently, successful ESP reading requires not only vocabulary knowledge but also the ability to process complex linguistic structures while constructing meaning from unfamiliar content.

From a cognitive perspective, reading in ESP involves managing substantial processing demands. Learners must integrate new terminology with prior knowledge, interpret logical relations, and extract relevant information for academic or professional purposes. These demands become more pronounced when texts contain dense grammatical constructions, as linguistic complexity directly affects how information is encoded and decoded during comprehension. Thus, ESP reading can be viewed as an interaction between disciplinary knowledge, lexical familiarity, and the structural features of texts.

This issue is particularly salient in English for Technical and Engineering contexts, where English functions as a primary medium for global knowledge exchange (Riemer, 2002). Technical texts are characterized by high informational density, logical sequencing, and frequent use of descriptive and procedural language (Nagy, 2014). Readers must navigate complex sentence structures alongside diagrams, specifications, and technical descriptions, which requires both linguistic competence and domain-related reasoning skills (Kr & Bojiah, 2023). Therefore, understanding how linguistic features shape reading demands is essential for supporting learners in technical ESP environments.

2.2. Syntactic Challenges in ESP Reading Skills

2.2.1. Syntactic challenges in reading skills

Difficulties in academic reading are frequently associated with syntactic complexity, a factor that directly shapes how linguistic information is processed during comprehension. Structures such as multi-clause sentences, non-canonical word order, clause reduction, and embedded elements increase the burden on working memory and complicate parsing processes, particularly for second language readers (Clahsen & Felser, 2006; Juffs, 1998; Papadopoulou & Clahsen, 2003). When syntactic relations are not immediately transparent, establishing links between sentence components becomes effortful, which in turn slows processing and reduces comprehension accuracy.

For EFL learners, syntactic processing is often less automatic and more resource-demanding. Rather than relying solely on implicit grammatical knowledge, readers may engage in controlled analysis to interpret complex constructions, thereby increasing cognitive load and potentially disrupting the formation of coherent mental representations of text (Al-Jarrah & Ismail, 2018). As research suggests, effective comprehension of academic discourse depends not only on knowledge of grammar but also on the ability to analyze sentence structure within context and map linguistic form onto meaning (Jeon & Yamashita, 2014; Shiotsu & Weir, 2007; Van Gelderen et al., 2004).

2.2.2. Syntactic challenges in ESP reading skills

Technical and academic discourse is characterized by linguistic choices that enable dense and precise representation of information; however, these features may also increase processing demands for readers with developing proficiency. From a psycholinguistic perspective, syntactic complexity influences how readers allocate cognitive resources during sentence processing. Structures that compress information or obscure grammatical relations increase working memory load and reduce processing efficiency, particularly among second language readers (Just & Carpenter, 1992; Van Gelderen et al., 2004).

Among the syntactic characteristics commonly associated with technical texts, sentence length, passive constructions, and nominalization have been widely discussed as contributors to textual complexity. Sentence length is often used as an indicator of structural density. Longer sentences typically contain multiple clauses, embedded elements, and compressed information units, all of which require readers to maintain syntactic relations across extended spans of text. As sentence length increases, working memory demands rise, making it more difficult to identify main propositions and hierarchical relationships (Nassaji, 2003).

Passive constructions are prevalent in technical discourse, where emphasis is placed on processes, outcomes, or phenomena rather than agents. Although this structure supports an impersonal and objective style, it may obscure action relationships and delay identification of core sentence elements, which can slow comprehension (Uzmi et al., 2024; Zhang & Cao, 2025).

Nominalization represents another common strategy in academic and technical writing. By encoding actions and processes as nouns, texts achieve conceptual density and abstraction; however, this shift from clausal to nominal structures reduces explicitness in action sequences and increases inferential demands on readers (Fatonah, 2014; Nguyen & Edwards, 2015). Studies on academic discourse also suggest that heavy nominalization is associated with increased reading difficulty (Hyland & Jiang, 2021).

Collectively, these syntactic features contribute to the informational compactness typical of technical ESP texts, yet they may also heighten cognitive load during reading. Their presence therefore warrants systematic examination when evaluating the linguistic demands of instructional materials.

3. Methodology

3.1. Research Design

This study employed qualitative document analysis design. Rather than examining classroom practices or learner performance, the study focused on instructional materials as linguistic artifacts. The aim was to analyze the syntactic characteristics of reading texts used in an ESP course and to evaluate their linguistic demands in relation to the expected proficiency level of learners. Document analysis is appropriate because teaching materials and course documents reflect pedagogical decisions and assumptions about learner readiness (Bowen, 2009). The unit of analysis therefore consisted of written instructional texts and official course documentation.

3.2. Research Context

The study was conducted in a specialized English course for third-year Electrical and Electronic Engineering students at Binh Duong Economics and Technology University. Students had completed four prior General English courses, corresponding to approximately B1 level on the CEFR scale. The 10-week course included one weekly session of three consecutive 50-minute periods and focused on reading comprehension and academic–technical vocabulary.

The course was taught by an Electrical and Electronic Engineering specialist with approximately C1 English proficiency, who selected and adapted materials according to pedagogical goals and learner readiness. The primary material was Oxford English for Electrical and Mechanical Engineering by Glendinning and Glendinning (1995), an ESP textbook whose topics and technical content are directly relevant to electrical engineering. Five of the 30 units were selected because they focused on electrical topics and were actually implemented during the semester, ensuring alignment with the course focus and students' specialization.

Although the textbook was published three decades ago, it continues to present core engineering concepts. However, disciplinary discourse evolves over time in response to changing communicative practices (Bhatia, 2008), meaning that contemporary engineering communication may differ in vocabulary, genre conventions, and rhetorical organization. Given its focus on structural and syntactic features, the analysis remains appropriate to the study's scope, while future research may explore how newer ESP textbooks reflect evolving engineering discourse.

3.3. Data Collection

The dataset consisted of reading passages extracted from the course textbook. Text selection followed two criteria to ensure relevance to the study aims. First, only complete paragraphs with coherent internal structure were included. Fragmented sentences, isolated examples, captions, and explanatory notes were excluded to maintain consistency in syntactic analysis. Second, disciplinary relevance was prioritized. In units containing multiple paragraphs, one paragraphs most closely aligned with electrical engineering content was selected, ensuring that the analyzed texts reflected the learners' academic domain. After filtering, five paragraphs from five units were retained for analysis. Table 1 summarizes the selected passages and their thematic focus.

Table 1. Contents of selected passages from the textbook

Unit	Theme	Content
Unit 1	Engineering – What's it all about?	*Transport: Cars, trains, ...* *... the equipment involved in these processes.*
Unit 6	The Electric Motor	*In an electric motor ...* *... keeps being reversed.*
Unit 15	Refrigerator	*Refrigeration preserves food ...* *... not over-frozen.*
Unit 28	Robotics	*Stepper motors are useful ...* *... are possible.*
Unit 29	Careers in Engineering	*I have to go there ...* *... on the production line.*

3.4. Data Analysis

All texts were analyzed through manual coding supported by Microsoft Word and Microsoft Excel. The analysis quantified three syntactic features: average sentence length (ASL), passive voice frequency, and nominalization density.

First, each passage was segmented into sentences and examined manually. Passive constructions were identified primarily through the be + past participle structure. Nominalizations were coded as nouns morphologically derived from verbs (e.g., development, installation, distribution).

Figure 1. Example of manual syntax coding

UNIT 1: Engineering – What's it all about?

No	Sentence	Word count	Passive	Nominalization
1	Transport: Cars, trains, ships, and planes are all products of mechanical engineering.	12	No	1
…	…	…	…	…
6	Energy and power: Electrical engineers are concerned with the production and distribution of electricity to homes, offices, industry, hospitals, colleges and schools, and the installation and maintenance of the equipment involved in these processes.	34	Yes	4
Total	**6**	**145**	**2**	**16**

Note: Passive voice is highlighted in yellow, and nominalizations in blue.

Second, coded data were transferred to Excel for quantitative calculation. ASL was computed by dividing the total number of words by the total number of sentences. Passive voice ratio was calculated as the proportion of passive sentences relative to all sentences, while nominalization density was determined by the proportion of nominalized forms relative to the total word count.

Finally, the measures were compared across passages to evaluate overall syntactic complexity and to identify features likely to pose processing difficulty for B1-level learners in ESP reading contexts.

4. Findings and Discussion

4.1. Syntactic Complexity in the Selected ESP Material

Quantitative analysis reveals noticeable variation in syntactic complexity across the selected passages. Average sentence length (ASL) ranged from 12.8 words in Unit 29 to 24.2 words in Unit 1 (Table 2). Although these mean values fall within a moderate range, sentence length within individual passages was highly uneven. Several sentences exceeded 30 words, while others were considerably shorter, indicating internal fluctuations in structural density. Such variability suggests that syntactic load is distributed irregularly rather than uniformly across the material.

Passive construction occurred frequently, accounting for 12.5% to 40% of all sentences. Unit 28 demonstrated the highest proportion, whereas Unit 29 contained the lowest. Beyond canonical *be + past participle forms*, the passages also included less prototypical passive patterns, such as *get + past participle* and progressive passive constructions (*e.g., keeps being reversed*). The presence of multiple passive realizations increases structural diversity and reduces the salience of agency within clauses.

Nominalization density showed the widest dispersion, ranging from 1.7% in Unit 6 to 11% in Unit 1. Notably, Unit 1 combined the highest ASL with the greatest concentration of nominalized

forms. The texts included both common technical nominalizations (*e.g., production, installation, maintenance*) and more specialized or less transparent forms (*e.g., repulsion, acceleration, micropositioning*), contributing to higher lexical and structural abstraction.

Table 2. Summary of syntactic features in the selected ESP material

Unit	Average Sentence Length (words)	Passive Ratio (%)	Nominalization Ratio (%)	Number of Sentences ≥30 words
1	24,2	33,3	11,0	2
6	19,6	33,3	1,7	2
15	13,4	37,0	2,2	0
28	14,2	40,0	2,6	1
29	12,8	12,5	2,9	0

Overall, the co-occurrence of longer sentences, substantial passive usage, and dense nominalization indicates that syntactic complexity in the selected material is uneven, with certain units exhibiting localized peaks of structural density relative to others.

4.2. Effects of Syntactic Complexity on Reading Comprehension

The findings can be considered in relation to the processing capacity typically associated with B1-level learners. According to CEFR descriptors, learners at this level can manage standard sentence patterns and familiar structures but may experience constraints when processing longer clauses, reduced syntactic transparency, and discipline-specific lexical forms (Council of Europe, n.d.; Tracktest, n.d.)n.d.; Tracktest, n.d.. Within this framework, the syntactic profile identified in the selected passages points to a level of structural demand that may place additional strain on intermediate readers.

Sentence length: Units such as Unit 1 and Unit 6 displayed higher ASL values and contained several sentences exceeding 30 words. The alternation between very short and extended sentences creates variability in structural density, requiring readers to repeatedly adjust parsing strategies. Psycholinguistic research indicates that increased clause length and embedding heightening memory load and may slow reading speed and accuracy (Clahsen & Felser, 2006; Juffs, 1998; Papadopoulou & Clahsen, 2003). In this context, sentence-length dispersion, rather than mean ASL alone, may contribute meaningfully to overall textual complexity.

Passive constructions: Passive voice accounted for 12.5% to 40% of sentences, with several units approaching or exceeding commonly observed levels in technical prose. Beyond canonical be-passives, the presence of less prototypical patterns (e.g., get-passives, progressive passives) increases structural variation. Such forms reduce the salience of agents and may require additional inferential processing, particularly for readers whose syntactic representations are still developing (Graesser et al., 2011; Rahimi & Rezaei, 2011). By backgrounding agents and foregrounding processes, these constructions can shift informational focus and increase interpretive demands.

Nominalization: Nominalization density varied substantially, with Unit 1 again showing the highest concentration. Nominalized forms condense processes into abstract entities, increasing lexical density and reducing explicit action structure. Studies of L2 reading suggest that high nominalization may elevate conceptual and syntactic abstraction, which can hinder efficient decoding when morphological awareness is limited (Jeon & Yamashita, 2014; Shiotsu & Weir, 2007). Accordingly, elevated nominalization within these passages may contribute to greater abstraction demands during comprehension.

Overall, the interaction of extended sentence structures, agent-suppressed constructions, and abstract nominal forms indicates that text difficulty is shaped by the convergence of multiple syntactic dimensions rather than any single index. This supports the importance of considering combined structural features in ESP readability evaluation when estimating potential linguistic demands.

4.3. Pedagogical Implications

The identified syntactic profile suggests that instructional supports should target specific structural features that increase processing demands for intermediate ESP readers. The co-occurrence of extended sentences, dense passive usage, and localized nominalization peaks allows specific instructional priorities to be identified.

First, variability in sentence length, particularly the presence of extended sentences with multiple clauses, indicates the need for instructional practices that promote syntactic awareness. Research in L2 reading shows that guided sentence parsing and clause-level analysis can support learners in identifying core propositions and hierarchical relations within complex sentences (Clahsen & Felser,

2006; Shirmohammadi & Salehi, 2017; Yusuf et al., 2017). In this context, attention to clause segmentation may help learners maintain coherence as structural density increases.

Second, the frequent use of passive constructions, including less prototypical forms, points to the value of raising learners' awareness of voice alterations and agency patterns. Studies in ESP and language awareness suggest that explicit attention to passive–active correspondences and functional differences between these forms can enhance structural recognition and interpretive accuracy (Bakhshandeh-Rostami & Jafari, 2018; Eragamreddy, 2024). Developing sensitivity to how agency is backgrounded in passive structures may, in turn, support more accurate interpretation of information flow in technical texts.

Third, the concentration of nominalized forms indicates a need to strengthen learners' ability to interpret morphologically complex lexical items. Instruction that links nominalizations to their verbal bases and situates them within domain-specific vocabulary networks has been shown to facilitate comprehension of technical texts (Fatonah, 2014; Hu & Perez, 2022). Supporting learners in recovering underlying processes from nominalized expressions may help mitigate the abstraction characteristic of technical discourse.

Collectively, these patterns advocate for feature-sensitive scaffolding aligned with recurrent structural issues in ESP reading. This approach moves pedagogy beyond isolated features toward supporting navigation of clustered syntactic and lexical abstraction in technical discourse.

5. Conclusion

This study explored the syntactic characteristics of selected ESP reading passages used with engineering students and identified uneven but occasionally elevated levels of structural complexity. Variation in sentence length, substantial use of passive constructions, and differing degrees of nominalization were observed across units, with certain texts displaying clusters of features associated with increased linguistic density. These trends suggest that the syntactic load within ESP materials may exhibit significant fluctuations within individual textbooks rather than remaining constant.

By correlating text-based syntactic indices with proficiency-related processing considerations, the study contributes to ESP material evaluation research, highlighting the importance of examining multiple structural dimensions rather than relying on a single readability indicator. The findings underscore the role of sentence structure, voice patterns, and lexical abstraction in shaping the linguistic demands of technical texts.

Several limitations of the study should be considered. The dataset included only five passages from a single textbook, which may not represent the full spectrum of ESP materials. Additionally, the study focused on textual features and did not include direct measures of learners' reading performance. Finally, the context involved B1-level learners from a single engineering discipline, which restricts generalizability. Future investigations could broaden the range of ESP texts examined, include learner-based comprehension assessments, and analyze how syntactic complexity interacts with variations across disciplines and proficiency levels.

Reference

Al-Jarrah, H., & Ismail, N. S. B. (2018). Reading comprehension difficulties among EFL learners in higher learning institutions. *International Journal of English Linguistics*, *8*(7), 32-41.

Arnó-Macià, E., Aguilar-Pérez, M., & Tatzl, D. (2020). Engineering students' perceptions of the role of ESP courses in internationalized universities. *English for Specific Purposes*, *58*, 58-74.

Bakhshandeh-Rostami, I., & Jafari, K. (2018). The effects of input enhancement and explicit instruction on developing Iranian lower-intermediate EFL learners' explicit knowledge of passive voice. *Asian-Pacific Journal of Second and Foreign Language Education*, *3*. https://doi.org/10.1186/s40862-018-0060-4

Bhatia, V. K. (2008). Discursive Practices in Disciplinary and Professional Contexts. *Linguistics and the Human Sciences*, *2*(1), 5-28. https://doi.org/10.1558/lhs.v2i1.5

Bojovic, M. (2010). Reading skills and reading comprehension in English for specific purposes. The international language conference on the importance of learning professional foreign languages for communication between cultures,

Bowen, G. A. (2009). Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, *9*(2), 27-40. https://doi.org/10.3316/qrj0902027

Clahsen, H., & Felser, C. (2006). Grammatical processing in language learners. *Applied Psycholinguistics*, *27*(1), 3-42. https://doi.org/10.1017/S0142716406060024

Council of Europe. (n.d.). *Global scale - Table 1 (CEFR 3.3): Common Reference levels*

. Retrieved 25/08/2025 from https://www.coe.int/en/web/common-european-framework-reference-languages/table-1-cefr-3.3-common-reference-levels-global-scale

Eragamreddy, N. (2024). Passive Voice Teaching: Recent Trends and Effective Strategies. *Studies in Humanities*

and Education, *5*, 44-63. https://doi.org/10.48185/she.v5i1.1112

Fatonah, F. (2014). Students' understanding of the realization of nominalizations in scientific text. *Indonesian Journal of Applied Linguistics*, *4*. https://doi.org/10.17509/ijal.v4i1.602

Graesser, A. C., McNamara, D. S., & Kulikowich, J. M. (2011). Coh-Metrix:Providing Multilevel Analyses of Text Characteristics. *Educational Researcher*, *40*(5), 223-234. https://doi.org/10.3102/0013189x11413260

Hu, G., & Perez, M. R. (2022). Effects of explicit instruction in nominalisation on ESL learners' academic writing. *Ibérica: Revista de la Asociación Europea de Lenguas para Fines Específicos (AELFE)*(43), 27-54.

Hyland, K., & Jiang, F. (2021). Academic Naming: Changing Patterns of Noun Use in Research Writing. *Journal of English Linguistics*, *49*(3), 255-282. https://doi.org/10.1177/00754242211019080

Jeon, E. H., & Yamashita, J. (2014). L2 reading comprehension and its correlates: A meta-analysis. *Language Learning*, *64*(1), 160-212.

Juffs, A. (1998). Main verb versus reduced relative clause ambiguity resolution in L2 sentence processing. *Language Learning*, *48*(1), 107-147.

Just, M. A., & Carpenter, P. A. (1992). A capacity theory of comprehension: Individual differences in working memory. *Psychological Review*, *99*(1), 122-149. https://doi.org/10.1037/0033-295X.99.1.122

Kr, S., & Bojiah, J. (2023). Effectiveness of the Reading Strategies Used by Engineering Students at the Undergraduate Level. *Rupkatha Journal on Interdisciplinary Studies in Humanities*, *15*. https://doi.org/10.21659/rupkatha.v15n2.18

Li, C., Wang, X., & Qian, L. (2025). Exploring Syntactic Complexity and Text Readability in an ELT Textbook Series for Chinese English Majors. *SAGE Open*, *15*(1), 21582440251323619. https://doi.org/10.1177/21582440251323619

Nagy, I. K. (2014). English for special purposes: Specialized languages and problems of terminology. *Acta Universitatis Sapientiae, Philologica*, *6*(2), 261-273.

Nassaji, H. (2003). Higher-Level and Lower-Level Text Processing Skills in Advanced ESL Reading Comprehension. *Modern Language Journal*, *87*(2), 261-276. https://doi.org/10.1111/1540-4781.00189

Nguyen, T. H. T., & Edwards, E. C. (2015). An Investigation of Nominalization and Lexical Density in Undergraduate Research Proposals1. *Language Education in Asia*, *6*(1), 17-30.

Papadopoulou, D., & Clahsen, H. (2003). Parsing strategies in L1 and L2 sentence processing: A study of relative clause attachment in Greek. *Studies in Second Language Acquisition*, *25*(4), 501-528. https://doi.org/10.1017/S0272263103000214

Pritchard, R. M. O., & Nasr, A. (2004). Improving reading performance among Egyptian engineering students: principles and practice. *English for Specific Purposes*, *23*(4), 425-445. https://doi.org/https://doi.org/10.1016/j.esp.2004.01.002

Rahimi, M. A., & Rezaei, A. (2011). Use of Syntactic Elaboration Techniques to Enhance Comprehensibility of EST Texts. *English Language Teaching*, *4*(1), 11-17.

Riemer, M. J. (2002). English and communication skills for the global engineer. *Global J. of Engng. Educ*, *6*(1), 91-100.

Shiotsu, T., & Weir, C. J. (2007). The relative significance of syntactic knowledge and vocabulary breadth in the prediction of reading comprehension test performance. *Language Testing*, *24*(1), 99-128. https://doi.org/10.1177/0265532207071513

Shirmohammadi, M., & Salehi, M. (2017). Comparative effect of scaffolding instruction and self-regulated learning on ESP learners' reading comprehension. *International Journal of English Language & Translation Studies*, *5*(4), 203-213.

Tracktest. (n.d.). *English grammar CEFR level requirements*. Retrieved 25/08/2025 from https://tracktest.eu/english-grammar-cef-level-requirements/?utm_source=chatgpt.com#B1grammar

Tran, T., & Duong, T. (2018). The difficulties in ESP reading comprehension encountered by English–majored students. *VNU Journal of Foreign Studies*, *34*. https://doi.org/10.25073/2525-2445/vnufs.4253

Uzmi, M. F., Nadira, T., & Lubis, Y. (2024). Experimental Study In Comparing The Effects Of Active And Passive Sentences On Reader Comprehension In Academic Texts. *Quality: Journal Of Education, Arabic And Islamic Studies*, *2*(1), 20-26.

Van Gelderen, A., Schoonen, R., De Glopper, K., Hulstijn, J., Simis, A., Snellings, P., & Stevenson, M. (2004). Linguistic knowledge, processing speed, and metacognitive knowledge in first-and second-Language reading comprehension: a componential analysis. *Journal of educational psychology*, *96*(1), 19.

Wu, X., Mauranen, A., & Lei, L. (2020). Syntactic complexity in English as a lingua franca academic writing. *Journal of English for Academic Purposes*, *43*, 100798. https://doi.org/https://doi.org/10.1016/j.jeap.2019.100798

Yusuf, Q., Yusuf, Y. Q., Yusuf, B., & Nadya, A. (2017). Skimming and scanning techniques to assist EFL students in understanding English reading texts. *Indonesian Research Journal in Education| IRJE*, 43-57.

Zhang, F., & Cao, R. (2025). The Passive Voice in Abstracts in Research Articles: A Diachronic Variation across Disciplines. *International Journal of Education and Humanities*, *18*, 57-61. https://doi.org/10.54097/49q16a46