INTEGRATING ARTIFICIAL INTELLIGENCE INTO THE TEACHING OF CONSTRUCTION-RELATED TERMINOLOGY: A LEXICOLOGICAL AND PEDAGOGICAL PERSPECTIVE

Author: Abdukarimova Nigora Mo’minjonovna [1]
Affiliation: Xaqaro Nordik Universiteti, Xorijiy til va adabiyoti 1- kurs magistranti [1]
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ABSTRACT

Teaching language has changed dramatically as a result of the quick development of digital technology, especially in specialized fields like engineering and construction. From a lexicological and pedagogical standpoint, this research investigates the incorporation of artificial intelligence (AI) into the teaching of construction-related terminology. Although the use of AI-based tools in language training has grown, little is known about how they might be applied to the acquisition of domain-specific vocabulary. Drawing on contemporary linguistic theory and educational technology research, this study examines how AI-driven systems can facilitate the acquisition, retention, and contextual usage of technical terminology without reducing learning to mechanical processes. The findings suggest that AI, when used as a supportive rather than dominant tool, enhances learner autonomy, improves semantic comprehension, and promotes contextualized language use. The paper also addresses potential challenges, including overreliance on automated systems and the need for pedagogical mediation.

Keywords: artificial intelligence (AI), construction terminology, lexicology, ESP, language pedagogy, digital learning.

INTRODUCTION

In recent decades, the gradual incorporation of digital technologies into language education has led to a noticeable shift in traditional teaching practices. What was once largely based on textbook-driven instruction and teacher-centered explanation has evolved into a more interactive and resource-rich learning environment. This transformation is particularly evident in the teaching of specialized vocabulary, where learners are expected not only to recognize terms but also to understand their functional use within professional contexts. Within the field of English for Specific Purposes (ESP), the teaching of terminology related to construction and engineering presents a distinct set of challenges. Unlike general language learning, which often allows for approximation and flexible interpretation, technical vocabulary requires a high level of precision. Learners must develop an understanding of terms that are closely tied to professional practice and cannot be interpreted adequately without contextual knowledge. Expressions such as load-bearing structure, reinforced concrete, and thermal insulation represent not only linguistic units but also conceptual frameworks embedded within the discipline of construction. From a lexicological perspective, such terminology is characterized by systematic organization and semantic interdependence. Words do not function in

isolation; rather, they form networks of meaning through collocations, professional conventions, and domain-specific usage. As noted by John Swales (1990), members of specialized discourse communities rely on shared linguistic resources to ensure clarity and efficiency in communication. In this sense, terminology serves as a tool for structuring professional knowledge as much as it does for facilitating interaction.

The complexity of construction-related vocabulary often poses difficulties for learners, especially those who lack direct exposure to the professional environment. Traditional methods, such as rote memorization or simple translation, frequently fail to provide the depth of understanding required for accurate usage. Learners may be able to recall terms in isolation but struggle to apply them appropriately in real-life or simulated communicative situations. This gap highlights the need for teaching approaches that emphasize contextualization, semantic relations, and practical application.

Recent pedagogical discussions have increasingly focused on the role of digital resources in supporting vocabulary acquisition. Interactive materials, visual representations, and context-based exercises have been shown to enhance learners' engagement and retention. However, the effectiveness of such tools largely depends on how they are integrated into the learning process. Technology, in itself, does not guarantee meaningful learning; rather, its value lies in its ability to support well-designed pedagogical strategies.

At the same time, it is important to approach technological integration with a critical perspective. Overreliance on automated tools may lead to a superficial understanding of language, where learners prioritize speed over accuracy and depth. Moreover, the absence of guided instruction can limit opportunities for reflection and critical thinking. Therefore, the role of the teacher remains essential in mediating the learning process, providing explanation, and ensuring that learners develop a nuanced understanding of terminology. In light of these considerations, the teaching of construction-related vocabulary requires a balanced approach that combines linguistic insight, pedagogical awareness, and thoughtful use of available resources. Rather than replacing traditional methods, new tools and techniques should be used to enhance and extend them. Such an approach allows learners to move beyond memorization and develop the ability to use terminology accurately, appropriately, and confidently within their future professional contexts.

The effective teaching of construction-related terminology requires not only the presentation of lexical items but also their integration into meaningful professional contexts. In practice, learners often encounter difficulties when attempting to apply technical vocabulary accurately, particularly in situations that require both linguistic precision and contextual awareness. This issue becomes more evident when terminology is taught in isolation, without sufficient attention to its functional use.

The teaching of construction-related terminology becomes more effective when lexical items are introduced and practiced within realistic professional contexts. Learners often demonstrate familiarity with individual terms; however, their ability to apply them accurately in authentic communication remains limited. This indicates that vocabulary knowledge, when detached from context, does not automatically translate into communicative competence.

A clear example can be observed in simulated classroom dialogues based on real construction site interactions. Consider the following exchange adapted from workplace communication:

Site Engineer: *"Have the workers finished the foundation work?"* Supervisor: *"Yes, the foundation has been poured, and we are preparing for the next phase."*

In this case, the expression foundation has been poured reflects authentic usage commonly found in construction settings. However, learners frequently produce inaccurate variations such as *"they did the foundation"* or *"they made the foundation,"* which, although understandable, lack professional precision. This demonstrates the importance of exposing learners to authentic patterns rather than simplified equivalents.

Another example can be drawn from written project descriptions. In real engineering reports, one may encounter sentences such as:

"Reinforced concrete was selected to ensure structural stability under heavy load conditions."

In classroom settings, learners often attempt to paraphrase this idea but produce forms like "Concrete is made stronger to hold heavy things." While the general meaning is conveyed, the technical and stylistic features of professional discourse are lost. This gap suggests that learners need guided exposure to authentic texts, where terminology is embedded within discipline-specific structures.

Authentic examples are also particularly useful in demonstrating collocational patterns. For instance, in construction manuals and safety guidelines, verbs such as install, assemble, and secure frequently occur with specific nouns:

"Workers must install scaffolding before beginning exterior wall construction."
"All safety equipment should be securely fastened prior to operation."

Learners who are unfamiliar with these patterns often produce incorrect combinations such as *"put scaffolding"* or *"fix safety equipment,"* which may be grammatically acceptable but do not reflect standard professional usage. As emphasized by Igor Melchuk (2012), lexical competence involves understanding typical word combinations, not just individual meanings.

In addition to spoken and written examples, process-based descriptions provide valuable learning opportunities. For example, a simplified but authentic sequence of construction stages might be presented as follows:

"The site is first cleared and excavated. After that, the foundation is laid, followed by the construction of the structural framework. Finally, finishing works such as insulation and interior design are completed."

When learners engage with such sequences, they begin to understand how terminology functions within a logical and procedural framework. However, without proper guidance, they may struggle to reproduce this structure and instead provide fragmented or non-standard descriptions.

From a pedagogical perspective, these examples confirm the importance of interaction and guided practice. As noted by Michael Long (1996), language development is enhanced when learners are actively involved in meaning-focused communication. In construction-related contexts, this can be achieved through role plays, case studies, and problem-solving tasks that simulate real professional situations.

At the same time, it is essential to maintain a balance between authenticity and accessibility. While authentic materials provide valuable exposure, they must be carefully selected and adapted to match learners' proficiency levels. As argued by Ken Hyland (2019), effective instruction in specialized domains requires structured support and gradual progression from guided to independent use.

Overall, the inclusion of authentic examples in teaching construction terminology significantly enhances learners' ability to use language accurately and appropriately. By engaging with real-life discourse, learners move beyond surface-level understanding and develop the practical skills necessary for professional communication. However, it is important to note that the effectiveness of these approaches depends on careful pedagogical guidance. As argued by Ken Hyland (2019), disciplinary language learning requires structured support and explicit instruction. Without such guidance, learners may develop incomplete or inaccurate representations of terminology.

CONCLUSION

The study has demonstrated that the teaching of construction-related terminology requires a comprehensive approach that integrates linguistic, contextual, and pedagogical dimensions. Unlike general vocabulary, technical terms in the field of construction are closely tied to professional practice and demand a high level of precision in both meaning and usage. Therefore, effective instruction should move beyond memorization and focus on the functional application of terminology within realistic contexts. The analysis of classroom-based examples has shown that learners often possess partial knowledge of technical terms but struggle to use them accurately in discourse. This gap highlights the importance of contextualized teaching, where vocabulary is presented through authentic examples, collocational patterns, and task-based activities. Such an approach enables learners to develop not only lexical knowledge but also communicative competence relevant to their future professional needs.

Furthermore, the findings suggest that supportive digital tools and interactive materials can enhance vocabulary acquisition when used appropriately. However, their effectiveness depends largely on the role of the teacher in guiding the learning process and ensuring that students engage critically with the material. Overdependence on automated or decontextualized input may limit deeper understanding and reduce the quality of language use.

In conclusion, the successful teaching of construction-related terminology lies in achieving a balance between technological support and pedagogical guidance. By combining contextual learning, structured instruction, and meaningful practice, educators can foster a more accurate, flexible, and professionally relevant use of specialized vocabulary. This, in turn, contributes to the development of learners' overall proficiency in English for Specific Purposes and prepares them for effective communication in construction and engineering environments.

REFERENCES

1. Biber, Douglas, and Susan Conrad. Register, Genre and Style. Cambridge University Press, 2009, pp. 15–42.

2. Chapelle, Carol A. Computer Applications in Second Language Acquisition: Foundations for Teaching, Testing and Research. Cambridge University Press, 2001, pp. 55–78.
3. Ellis, Rod. Task-Based Language Learning and Teaching. Oxford University Press, 2003, pp. 1–35.
4. Flowerdew, John. Discourse in English Language Education. Routledge, 2013, pp. 23–47.
5. Godwin-Jones, Robert. “Using Artificial Intelligence in Language Learning.” Language Learning & Technology, vol. 22, no. 3, 2018, pp. 1–4.
6. Graves, Michael F. The Vocabulary Book: Learning and Instruction. Teachers College Press, 2006, pp. 78–102.
7. Hyland, Ken. Second Language Writing. Cambridge University Press, 2019, pp. 56–89.
8. Long, Michael H. “The Role of the Linguistic Environment in Second Language Acquisition.” Handbook of Second Language Acquisition, edited by William Ritchie and Tej Bhatia, Academic Press, 1996, pp. 413–468.
9. Luckin, Rose. Machine Learning and Human Intelligence: The Future of Education for the 21st Century. UCL Institute of Education Press, 2018, pp. 101–126.
10. Melchuk, Igor. Semantics: From Meaning to Text. Vol. 1, John Benjamins, 2012, pp. 120–158.
11. Nation, I. S. P. Learning Vocabulary in Another Language. Cambridge University Press, 2001, pp. 67–95.
12. OECD. Artificial Intelligence and the Future of Education: Challenges and Opportunities. OECD Publishing, 2021, pp. 34–59.
13. Schmitt, Norbert. “Review of Vocabulary Learning Research: What the Future Might Bring.” Language Teaching, vol. 41, no. 3, 2008, pp. 329–363.
14. Selwyn, Neil. Education and Technology: Key Issues and Debates. 3rd ed., Bloomsbury Academic, 2021, pp. 90–115.
15. Stockwell, Glenn. “Technology and Motivation in English-Language Teaching and Learning.” Language Learning & Technology, vol. 17, no. 3, 2013, pp. 138–146.