

THEORETICAL FOUNDATIONS OF AI-BASED TOOLS IN TEACHING ENGLISH FOR SPECIFIC PURPOSES

Soyibjonov Jaxongirmirzo Sobirjon o'g'li

4th year student, Faculty of Tourism, Chirchik State Pedagogical University

Tangirova Kamila

Scientific supervisor: Associate Professor, University of Warwick

Annotation: *This thesis examines the theoretical foundations underlying the integration of AI-based tools into teaching English for Specific Purposes (ESP). Drawing on the classical theories of S. Krashen (Input Hypothesis), L. S. Vygotsky (Zone of Proximal Development), J. Piaget (Constructivism), G. Siemens (Connectivism), and J. Sweller (Cognitive Load Theory), as well as the foundational ESP framework of T. Hutchinson and A. Waters, the paper argues that AI tools have a coherent theoretical basis for use in ESP teaching. The contemporary work of R. Luckin and W. Holmes on AI in education provides the modern bridge between traditional language pedagogy and emerging digital technologies.*

Keywords: *ESP, artificial intelligence, language pedagogy, Krashen, Vygotsky, theoretical framework, higher education.*

The teaching of English for Specific Purposes (ESP) has, since the 1960s, focused on the concrete language needs of learners in professional, academic, and occupational contexts. T. Hutchinson and A. Waters, in their seminal 1987 work, defined ESP as an approach in which all decisions about content and methodology are based on the learner's reason for learning [1]. This learner-centered orientation, refined by T. Dudley-Evans and M. J. St John [2] and H. Basturkmen [3], remains the conceptual basis of contemporary ESP practice.

The arrival of generative artificial intelligence tools — ChatGPT, Grammarly, ELSA Speak, and similar systems — has introduced new possibilities into language teaching. These tools can generate authentic professional content, provide personalized feedback, simulate communicative situations, and support extensive practice beyond the classroom. However, their integration into ESP cannot rest on technological enthusiasm alone; it requires a coherent theoretical foundation grounded in established theories of language acquisition.

Five theoretical frameworks form this foundation. **S. Krashen's Input Hypothesis** [4] argues that language acquisition occurs when learners receive comprehensible input slightly above their current level ($i+1$). AI tools, especially generative AI, can adjust the difficulty of texts and tasks dynamically, providing input that closely matches the $i+1$ principle. **L. S. Vygotsky's sociocultural theory** [5] introduces the Zone of Proximal Development (ZPD) — the gap between what a learner can do independently and what they can do with the help of a more knowledgeable other. AI tools function as such a "digital more knowledgeable other," scaffolding the learner through their ZPD until independent competence emerges.

J. Piaget's constructivism [6] views learning as active knowledge construction through interaction with the environment. AI tools create rich interactive environments in which learners can experiment with language and revise their understanding based on immediate feedback. **G. Siemens's connectivism** [7] offers a learning theory for the digital age: knowledge exists in networks, and learning involves forming connections between information nodes — AI tools are powerful new nodes in this network. **J. Sweller's cognitive load theory** [8] provides further guidance: AI tools can reduce extraneous cognitive load by offering clear explanations and targeted feedback, freeing learners to engage more deeply with the core content of ESP.

Contemporary scholarship on AI in education complements these classical theories. R. Luckin [9] distinguishes three categories of educational AI: learner-facing tools (such as ChatGPT and Grammarly), teacher-facing tools (supporting planning and assessment), and system-facing tools (informing institutional decisions). W. Holmes and colleagues [10] emphasize that the integration of AI in education requires careful attention to ethical considerations — data privacy, algorithmic bias, academic integrity, and the risk of learner over-reliance. These concerns are particularly important in ESP, where AI-generated content may contain hallucinations or domain-specific errors that learners without expert knowledge cannot easily detect.

Together, these theoretical frameworks provide a robust foundation for the principled integration of AI-based tools into ESP teaching. They suggest that AI is not a pedagogical novelty but a legitimate extension of well-established theories of language acquisition. In the Uzbek higher education context, the integration of AI into ESP aligns with national priorities

articulated in the Presidential Decree No. PF-60 "On the Development Strategy of New Uzbekistan for 2022–2026" and Resolution PQ-4623 on the modernization of foreign language teaching. The theoretical foundations outlined here enable Uzbek scholars and practitioners to design AI-integrated ESP courses on solid pedagogical ground rather than on technological enthusiasm alone.

REFERENCES:

1. Hutchinson T., Waters A. English for Specific Purposes: A Learning-Centred Approach. — Cambridge: Cambridge University Press, 1987.
2. Dudley-Evans T., St John M. J. Developments in English for Specific Purposes. — Cambridge: Cambridge University Press, 1998.
3. Basturkmen H. Developing Courses in English for Specific Purposes. — Basingstoke: Palgrave Macmillan, 2010.
4. Krashen S. D. The Input Hypothesis: Issues and Implications. — London: Longman, 1985.
5. Vygotsky L. S. Mind in Society: The Development of Higher Psychological Processes. — Cambridge, MA: Harvard University Press, 1978.
6. Piaget J. Science of Education and the Psychology of the Child. — New York: Orion Press, 1970.
7. Siemens G. Connectivism: A learning theory for the digital age // International Journal of Instructional Technology and Distance Learning. — 2005. — Vol. 2, No. 1. — P. 3–10.
8. Sweller J. Cognitive load during problem solving: Effects on learning // Cognitive Science. — 1988. — Vol. 12, No. 2. — P. 257–285.
9. Luckin R. Machine Learning and Human Intelligence: The Future of Education for the 21st Century. — London: UCL Institute of Education Press, 2018.
10. Holmes W., Bialik M., Fadel C. Artificial Intelligence in Education: Promises and Implications for Teaching and Learning. — Boston: Center for Curriculum Redesign, 2019.