Research and Science TODAY
www.rstjournal.com

OPEN ACCESS

Section: *Social Sciences and Humanities*
Issue: *1/2026*
Article number: *15.2026*

DOI
https://doi.org/10.38173/RST.2026.1.15

Anxiety in the Age of Artificial Intelligence: Implications for Foreign Language Teaching and Learning

Ana Maria HOPÂRTEAN [1]

[1] PhD, Babes-Bolyai University Cluj Napoca, anca.hopartean@econ.ubbcluj.ro

Received: *16 February 2026*
Revised: *2 March 2026*
Accepted: 22 March 2026
Available online: 22 March 2026

Suggested citation
A. M. Hopârtean. "Anxiety in the Age of Artificial Intelligence: Implications for Foreign Language Teaching and Learning", Research and Science Today, vol. 2026, no. 1, art. no. 15.2026, pp. 1–6, 2026, doi: 10.38173/RST.2026.1.15.

Abstract

The rapid integration of artificial intelligence (AI) into foreign language education is transforming pedagogical practices, learner autonomy, and assessment, particularly in higher education. While research has emphasized the instructional benefits of AI tools, less attention has been paid to their affective impact. This theoretical article examines anxiety as a central emotional variable mediating the relationship between AI technologies and English as a Foreign Language (EFL) teaching and learning. Drawing on theories of foreign language anxiety and contemporary AI scholarship, the paper conceptualizes AI-related anxiety as a multidimensional phenomenon affecting both learners and lecturers. Anxiety arises not only from linguistic performance but also from concerns about control, agency, ethics, and professional identity. By framing anxiety as an emergent phenomenon at the intersection of linguistic demands, technological mediation, and professional-identity dimensions, the article goes beyond a mere synthesis of literature to offer a reconceptualization of emotional dynamics in AI-mediated EFL contexts. Synthesizing insights from affective psychology and educational technology, the article illuminates how AI may amplify, transform, or alleviate anxiety in EFL contexts. It concludes by outlining pedagogical implications for university lecturers and suggesting directions for future theoretical and empirical research.

Keywords: *Artificial Intelligence; Foreign Language Anxiety; English as a Foreign Language (EFL); Higher Education; Affective Factors.*

INTRODUCTION

Artificial intelligence has become an increasingly influential presence in higher education, particularly in the field of foreign language teaching and learning. AI-powered tools such as automated writing evaluation systems, intelligent tutoring platforms, machine translation applications, and conversational agents are now routinely embedded in university EFL classrooms. These technologies promise enhanced efficiency, individualized feedback, and extended learning opportunities beyond the temporal and spatial constraints of traditional instruction.

Yet educational innovation is never emotionally neutral. Language learning is a cognitively demanding, socially exposed, and identity-sensitive process in which learners are required to perform publicly in a non-native language. As a result, affective variables —most notably anxiety—have long been recognized as central to understanding both success and failure in language acquisition. The introduction of AI technologies adds a new layer of emotional complexity to this already fragile learning ecology.

For students, interaction with AI systems may provoke uncertainty, fear of inadequacy, or loss of agency, particularly when AI-generated language appears more fluent or authoritative than their own production. For lecturers, AI adoption may generate anxiety related to technological competence, ethical accountability, and professional relevance in increasingly automated educational environments. Despite the growing presence of AI in language education, these affective dimensions remain under-theorized. Much of the existing literature prioritizes performance outcomes, efficiency, or learner perceptions, often treating emotional responses as secondary or incidental.

This paper goes beyond simply reviewing previous research. It presents anxiety as a complex, multidimensional experience that arises where language learning, technology, and teachers' or learners' professional identities intersect. By looking at anxiety in this way, the article offers a framework to understand how emotional reactions both influence and are influenced by the use of AI in higher education EFL classrooms.

ANXIETY IN FOREIGN LANGUAGE LEARNING: A THEORETICAL PERSPECTIVE

Understanding anxiety in foreign language learning is crucial for making sense of AI in education. Learners' and teachers' emotional responses are shaped by social context, expectations of evaluation, and perceptions of competence—all factors that AI can amplify, mediate, or transform. The following section reviews established theoretical models of foreign language anxiety, providing a foundation for examining how these dynamics may be affected in AI-mediated EFL classrooms.

Anxiety in foreign language learning has been widely conceptualized as a situation-specific affective variable that differs qualitatively from general anxiety. The foundational work of Horwitz, Horwitz, and Cope [1] established foreign language classroom anxiety as a distinct construct comprising communication apprehension, test anxiety, and fear of negative evaluation. Together, these components capture the heightened vulnerability learners experience when required to use a developing linguistic system in socially evaluative contexts.

From a cognitive perspective, anxiety interferes with language processing by diverting attentional resources away from task execution. MacIntyre and Gregersen [2] argue that anxiety disrupts the balance between cognitive input, processing, and output, reducing working memory capacity and increasing self-monitoring. As a result, anxious learners may struggle to retrieve lexical items, organize syntactic structures, or respond fluently, even when they possess the requisite linguistic knowledge.

Anxiety in language learning is also dynamic and context dependent. It fluctuates across tasks, interlocutors, and institutional settings, intensifying in situations involving public performance, assessment, or comparison with others. Importantly, anxiety is not merely an individual psychological trait, but a socially constructed experience shaped by classroom norms, power relations, and expectations of correctness and competence.

Teachers' emotions play a critical role in this affective ecology. Oxford [3] emphasizes that teachers' beliefs and emotional states influence classroom atmosphere, task design, and learner engagement. In higher education, lecturers may experience anxiety related to professional evaluation, curricular demands, and changing institutional priorities. When digital technologies are introduced, these pressures may intensify, particularly if teachers feel compelled to adopt tools without adequate preparation or agency.

From a theoretical standpoint, foreign language anxiety can therefore be understood as relational, situated, and mediated by instructional environments. This understanding provides a crucial foundation for examining how AI technologies reconfigure the emotional dynamics of EFL classrooms.

ARTIFICIAL INTELLIGENCE IN LANGUAGE EDUCATION: CONCEPTUAL FOUNDATIONS

Artificial intelligence in education is frequently framed as a means of enhancing personalization, efficiency, and scalability. In language education, AI applications include adaptive learning platforms, automated feedback systems, speech recognition technologies, machine translation tools, and conversational agents capable of simulating interaction. These technologies align with learner-centered pedagogical approaches by offering individualized pacing, immediate feedback, and increased learner autonomy.

However, contemporary theoretical discussions increasingly emphasize the sociotechnical nature of AI systems. AI is not just a teaching tool—it also shapes what is considered "correct" or "good" language and influences how progress is judged. In doing so, it changes traditional teacher-student relationships and the standards by which learners' performance is evaluated in EFL classrooms. Algorithms are trained on datasets, reflect specific linguistic norms, and embody assumptions about what constitutes "good" language use. As a result, AI systems redistribute agency between human and machine actors and reconfigure traditional pedagogical relationships.

Scholars have raised concerns about the ethical and epistemological implications of AI in education, including algorithmic bias, lack of transparency, data privacy, and surveillance. In language education, these concerns intersect with questions of authorship, originality, and assessment. Automated feedback may privilege formal accuracy over communicative effectiveness, while machine-generated language can create unrealistic performance benchmarks for learners.

From an affective perspective, AI introduces ambiguity and uncertainty into teaching and learning processes. Learners may struggle to evaluate the reliability or legitimacy of AI feedback, while lecturers may experience tension between their professional judgment and algorithmic output. Institutional pressure to adopt AI for efficiency or innovation may further exacerbate these tensions, creating conditions in which anxiety becomes a predictable emotional response.

Recent theoretical and empirical work highlights that the educational impact of AI is mediated not only by technological sophistication but also by learners' affective and cognitive characteristics. Research grounded in resource-based theory suggests that institutional AI capability influences students' learning performance indirectly through affective and cognitive mediators, particularly self-efficacy and creativity [4]. From a theoretical perspective, these

findings are highly relevant because self-efficacy has long been associated with learners' capacity to manage anxiety, sustain engagement, and regulate their own learning behaviors. When AI environments enhance learners' perceptions of competence and agency, they may help mitigate anxiety; conversely, when AI is perceived as opaque, overly evaluative, or difficult to control, it may undermine self-efficacy and exacerbate affective barriers. This perspective reinforces the need to examine anxiety not as an isolated reaction to AI tools, but as part of a broader emotional system shaped by institutional practices and technological environments.

At the same time, large-scale reviews of AI in education reveal a rapidly expanding and diverse research landscape. Bibliometric analyses of thousands of publications from 2000 to 2019 indicate that AI applications encompass intelligent tutoring systems, natural language processing for language learning, educational robots, educational data mining, affective computing, and recommender systems for personalized learning [5]. While this body of work demonstrates increasing scholarly attention to AI technologies, it also highlights a relative scarcity of studies addressing the emotional and psychological experiences of students and lecturers. This gap underscores the importance of focusing on anxiety and other affective variables when investigating AI integration in higher education EFL contexts.

Taken together, these findings suggest that AI should be understood not only as a set of technological tools but also as a complex, affectively charged environment that interacts with learners' beliefs, perceptions of competence, and emotional responses. This theoretical framing sets the stage for examining how AI may both amplify and mitigate anxiety in EFL classrooms, which is the focus of the next section.

CONCEPTUALIZING THE INTERACTION BETWEEN ANXIETY AND AI IN EFL CONTEXTS

It is important to distinguish mechanisms affecting learners from those affecting lecturers, while emphasizing their interconnection, because this distinction clarifies how anxiety circulates within the educational system and highlights different points for pedagogical intervention.

For learners, AI can intensify traditional forms of language anxiety by introducing new modes of comparison. AI-generated language often appears fluent, rapid, and error-free, encouraging learners to evaluate their own performance against algorithmic output rather than human peers. This comparison may heighten fear of negative evaluation, even in ostensibly low-stakes learning environments.

AI also alters the social dimension of language learning. While interaction with chatbots or automated systems may reduce immediate social pressure for some learners, it may simultaneously reduce opportunities for authentic human interaction. From an affective standpoint, peer and teacher interaction often serve as buffers against anxiety by providing reassurance, empathy, and contextualized feedback. Reduced human engagement may therefore deprive learners of important emotional scaffolding.

Cognitive load further complicates this interaction. Learners must manage linguistic challenges while navigating technological interfaces, interpreting automated feedback, and making decisions about appropriate AI use. This dual demand can increase stress and cognitive overload, particularly for learners with lower digital literacy or confidence.

For lecturers, AI-related anxiety is closely tied to issues of professional identity, authority, and control. The delegation of pedagogical functions—such as feedback provision, assessment, or error correction—to AI systems may be experienced as a challenge to teacher expertise. Ethical dilemmas related to plagiarism, data protection, and cultural bias place

additional moral and emotional burdens on educators. Even when AI is framed as a supportive tool, underlying fears of professional redundancy or devaluation may persist.

Crucially, lecturer and student anxieties are interdependent. Anxious or hesitant use of AI by lecturers may signal uncertainty, reinforcing student apprehension. Conversely, visible student discomfort or resistance may discourage lecturers from experimenting with AI tools. Anxiety thus circulates within the educational system, highlighting the need for collective rather than purely individual responses.

PEDAGOGICAL IMPLICATIONS FOR UNIVERSITY EFL LECTURERS

A theoretical understanding of AI-related anxiety has important implications for pedagogical practice in higher education EFL contexts.

First, lecturers need to recognize anxiety as a systemic, rather than purely individual, response to language learning and technological change. Making anxiety visible through classroom dialogue can normalize uncertainty and reduce feelings of inadequacy, particularly when AI-generated language appears more fluent or authoritative than learner production. For example, lecturers may begin a course with a short discussion activity in which students compare their own language production with AI-generated responses and reflect on differences in style, accuracy, and usefulness. Such activities can help students see AI as a tool rather than a benchmark of "perfect" language.

Second, lecturers should adopt a transparent stance toward AI tools. Explaining how AI systems work, what their limitations are, and why outputs should be interpreted cautiously helps reduce learners' fear of negative evaluation and unrealistic comparison. In practice, this might involve asking students to analyse an AI-generated paragraph in a reading activity, identifying both strengths and potential inaccuracies. Such exercises encourage critical thinking and reduce the perception of AI as an infallible authority.

Third, AI integration should be gradual and pedagogically sequenced. For instance, tools may first be used for low-stakes activities such as brainstorming, rehearsal, or self-checking, before being introduced in higher-stakes assessment or collaborative tasks. In speaking classes, students might first use AI chatbots to rehearse short dialogues privately before performing similar conversations with peers in class. In writing or grammar-focused activities, AI could initially support error detection or sentence reformulation before students attempt more complex tasks independently. This approach helps manage cognitive load and supports learner confidence.

Fourth, maintaining a central role for human interaction remains essential. While AI may support practice and feedback, it cannot replace the affective functions of the teacher, including reassurance, empathy, and contextualized judgment. Lecturers should design learning environments in which AI complements rather than substitutes interpersonal communication. For example, AI-generated listening transcripts or summaries might be used as preparation for classroom discussions, where students interpret the content collaboratively and receive feedback from the lecturer. Human feedback, particularly in evaluative contexts, serves as an important emotional anchor that mitigates anxiety and reinforces trust.

Finally, the emotional well-being of lecturers must also be acknowledged. AI-related anxiety among educators is often linked to issues of professional identity, ethical responsibility, and institutional pressure. Universities should support lecturers through professional development initiatives that address not only technical skills but also pedagogical autonomy and ethical reasoning. Creating institutional spaces for reflection, peer dialogue, and shared decision-making can help transform anxiety into critical engagement rather than resistance. From a theoretical perspective, such collective approaches recognize anxiety as a systemic

phenomenon and position lecturers as active agents in shaping emotionally sustainable AI integration.

CONCLUSION

Anxiety is a central yet often underexamined dimension of AI integration in foreign language education. This article has argued that anxiety should be understood not simply as an individual emotional reaction, but as an emergent phenomenon that develops through the interaction between technological environments, pedagogical relationships, and identity processes within the classroom.

By bringing together theories of foreign language anxiety with conceptual perspectives on artificial intelligence in education, the paper shows how AI can reshape the emotional dynamics of EFL classrooms for both students and lecturers. Anxiety in this context does not arise only from linguistic performance, but also from broader concerns related to agency, evaluation, comparison with AI-generated language, and professional identity.

Understanding anxiety in this broader relational way allows educators to see AI not only as a technological innovation but also as a factor that transforms the social and emotional conditions of language learning. Recognizing these dynamics is essential if AI is to function as a pedagogical ally rather than a source of additional pressure in higher education EFL contexts.

Author Contributions: The author confirms being the sole contributor to this work and has approved it for publication.

Funding: This research received no external funding.

Institutional Review Board Statement: Ethical review and approval were not required for this study.

Informed Consent Statement: The manuscript does not contain identifiable personal data.

Data Availability Statement: All relevant data are included in the manuscript.

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

REFERENCES

[1]. E. K. Horwitz, M. B. Horwitz, and J. Cope, “Foreign language classroom anxiety,” The Modern Language Journal, vol. 70, no. 2, 1986.
[2]. P. D. MacIntyre and T. Gregersen, “Affect: The role of language anxiety and other emotions in language learning,” in Psychology for Language Learning: Insights from Research, Theory & Practice, S. Mercer, S. Ryan, and M. Williams, Eds., London: Palgrave Macmillan, 2012.
[3]. R. L. Oxford, “Anxiety and the language learner,” in Affect in Language Learning, J. Arnold, Ed., Cambridge: Cambridge University Press, 1999.
[4]. S. Wang, Z. Sun, and Y. Chen, “Effects of higher education institutes’ artificial intelligence capability on students’ self-efficacy, creativity, and learning performance,” Education and Information Technologies, vol. 28, 2023.
[5]. X. Chen, D. Zou, H. Xie, G. Cheng, and C. Liu, “Two decades of artificial intelligence in education: Contributors, collaborations, research topics, challenges, and future directions,” Educational Technology & Society, vol. 25, no. 1, 2022.