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AI and the Future of Language Teaching:
Motivating Sustained Integrated Professional Development

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ABSTRACT

The November 2022 release of ChatGPT revolutionized the accessibility, perception, and use of generative artificial intelligence (GenAI). In this position paper, we argue that a major goal of currently-practicing language teachers should be to acquire relevant knowledge and skills in GenAI, with teacher educators, professional organizations, and language programs co-responsible in that effort. As necessary background, we describe the history and current state of AI in language teaching, especially as it relates to GenAI. Then, drawing on recent research and in-service training sources, we offer guidance for practicing teachers at all stages of their careers to achieve a basic understanding of and facility with GenAI in a range of forms relevant for language teaching and learning. We propose that teachers engage in a targeted form of continuous professional development, GenAI sustained integrated professional development (SIPD), to accommodate the rapid, unpredictable, and likely transformative changes in GenAI for language education.

KEYWORDS

Generative AI, GenAI, Professional Development, Ethics, Chatbots, Machine Translation, AI Competency, AI Literacy, Assessment, Large Language Models

INTRODUCTION

The degree to which generative artificial intelligence (GenAI) has rapidly infiltrated education is unparalleled. Language education has been particularly impacted because GenAI tools process and generate the learning objective of that education, i.e., human language. Language teacher education programs have been faced with addressing GenAI since the public release of ChatGPT in November 2022, and we anticipate that many recent and future graduates will have had some formal education that includes it. Moorhouse & Kohnke (2024) provide initial insights from a group of language teacher educators on this topic. But what about those who have already completed their formal education and are in the language teaching workforce, the millions of individuals across the world actively teaching languages at all levels?

UNESCO (2024) has recognized the immediate need for AI competency across the board in education and why it should be addressed.

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> *Al can pose significant risks to students, the teaching community, education systems and society at large…In education, Al can reduce teaching and learning processes to calculations and automated tasks in ways that devalue the role and influence of teachers and weaken their relationships with learners. It can narrow education to only that which Al can process, model and deliver. Finally, it can also exacerbate the worldwide shortage of qualified teachers through disproportionate spending on technology at the expense of investment in human capacity development (p. 13).*

So, given this litany of dangers, what do we think language teachers need to know and be able to do to achieve a functional level of expertise so that they can safely leverage the affordances of GenAI to improve rather than degrade language learning processes and outcomes? How can language teachers and language programs support them in accomplishing this goal?

In this position paper, we first address these questions by focusing on the importance of *understanding* the fundamentals of AI and its subset GenAI, as recognized in a number of AI competency and literacy frameworks. For example, the UNESCO (2024) AI Competency Framework for Teachers states that at the *lowest* of their three levels of AI competency, "Teachers are expected to acquire basic conceptual knowledge on AI, including: the definition of AI, basic knowledge of how AI models are trained, and associated knowledge on data and algorithms" (p. 30). The Educause (2024) Durable AI Literacy Framework, targeted at tertiary institutions, goes further: "Faculty must grasp the core principles of AI, including machine learning, natural language processing, and neural networks. This foundational knowledge is crucial for understanding how AI operates and what its potential applications are in various academic disciplines." Other frameworks we discuss below, such as those from the International Society for Technology in Education (ISTE) and Paradox Learning, echo this need for teacher understanding.

In the first part of this paper, we sketch the computational (mathematical) underpinnings and approaches of GenAI, the basics of human conversation with a chatbot (a machine), and the context of intelligent tutoring systems and machine translation. We then review the preceding four AI competency/literacy frameworks and draw from those and other sources 10 areas for teachers to first familiarize themselves with and then engage in to become competent with GenAI as it exists today. Finally, we offer guidance for what we refer to as GenAI sustained integrated professional development (GenAI-SIPD), providing principles and strategies to help language teachers thrive in a rapidly evolving and unpredictable future.

LANGUAGE AND AI: A MATHEMATICAL EQUATION

The seventy years of AI (see McCarthy et al. (1955)) have seen an intertwining of language and computing. At first, computers, as the name says, were meant for computation, for the fast calculation of a few complex equations or many simple ones. It was later that calculations were done with texts as input. Famously, first successful computations of and with letters were done at the Government Code and Cypher School at Bletchley Park to break the German Enigma cipher as part of the British effort in World War II (Wikipedia Contributors, 2025). After the mathematician Alan Turing and his colleagues deciphered messages by the German Luftwaffe and navy successfully, he proposed that these new machines could also be used for language (Turing (1948) quoted in Hutchins, 1986, pp. 26-27). The Turing test (Turing, 1950) stipulated that a calculating machine, a computer, could show intelligence if a human interlocutor on one side of a screen could not tell whether they had a conversation with another human or a machine on the other side of the screen. ChatGPT passed this test successfully in 2024 (Jones & Bergen, 2024).

With the beginning of the Cold War, machine translation seemed to hold a lot of promise. Researchers' predictions of success were based – at least in part – on the idea that translating from Russian into English is just like deciphering an encrypted message; letters have to be exchanged for other letters according to certain patterns in a deterministic mathematical process. Of course, this did not do justice to the complexities of language, communication, and translation. So, the then nascent field of

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