Applied Language Learning

Research

World Language Instructors' Perceptions of Using Generative AI Tools

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The paradigm of second language teaching and learning has transformed significantly over the past several decades with a focus on standards and student proficiency in the target language. Emerging digital technologies continue to be practical tools for both instructors and students, among which artificial intelligence has gained substantial interest. Large language models such as ChatGPT can be described as a disruptive technology—"an innovation that significantly alters or even revolutionizes an existing industry, often introducing new and more efficient approaches, challenging methodologies, or rendering older methods obsolete" (Zimotti et al., 2024, p. 2). Following IRB approval, the researchers examined world language instructors' perceptions of using artificial intelligence for a variety of purposes framed in Su and Yang's (2023) IDEE framework. Results indicated that there are advantages and concerns when integrating artificial intelligence tools in the world language classroom. The study has implications for world language teachers, world language program coordinators, and educationalists.

Keywords: *Artificial Intelligence, World Language Teaching And Learning, Instructor Perceptions, ChatGPT, IDEE framework*

BACKGROUND

Large language models like those used in ChatGPT can be described as a disruptive technology—"an innovation that significantly alters or even revolutionizes an existing industry, often introducing new and more efficient approaches, challenging methodologies, or rendering older

methods obsolete" (Zimotti et al., 2024, p. 2). These artificial intelligence (AI) models are trained on massive amounts of textual data and can generate human-like text, answer questions, and complete other language-related tasks with incredible accuracy. Furthermore, they can predict the probability of word sequences or even generate new text based on a given input, which can advance world language (WL) teaching and learning. Such technology has the capability to personalize learning, develop curricula and learning exercises, and provide feedback to learners on their progress up the proficiency ladder. New technology requires educators to adapt, which can be rather intimidating (Zimotti et al., 2024). Thus, it is important to understand WL teachers' attitudes towards this innovative technology. The purpose of this survey research was to explore world language instructors' perceptions of using AI for instructional purposes.

LITERATURE REVIEW

AI in World Language Teaching and Learning

Benefits of Using AI in World Language Classes

By integrating AI into today's paradigm of second language (L2) teaching and learning, researchers suggest a landscape of cautious optimism tempered by skepticism, where students are able to comprehend and produce the new language while developing both linguistic proficiency and intercultural competence (de Vicente Yagüe Jara et al., 2023; Guo & Wang, 2023; Mohamed, 2023). Research indicates that generative artificial intelligence can be effective in improving student outcomes but only in the context of their "extreme specialization in computable tasks" (Fuchs, 2022, p. 255). These tools have been found to be particularly helpful in the following areas for language teaching and learning.

AI for Curriculum and Materials Development. When learning a new language, practice and focus on function (Hildebrandt & Swanson, 2016) play a crucial and decisive role. However, with large class sizes and varying levels of student proficiency in classes, the development of traditional teacher-created materials poses distinct challenges for language teachers (e.g., students' varying linguistic backgrounds, learning styles, and levels of prior knowledge). Employing large language models like ChatGPT can create engaging classroom materials, lesson plans, activities, and formative assessments (Çobanoğullari, 2024; Lee et al., 2023), as well as level-specific writing prompts (Baidoo-Anu & Owusu Ansah, 2023). Specifically, large language models can assist language teachers in the teaching of grammatical principles and even facilitate conversational practice (Kasneci et al., 2023) and have shown promise for enhancing core language learning skills for courses that utilize a learning management system, such as Canvas or Blackboard (Ayotunde et al., 2023).

AI for Student Feedback. Research has shown that students find teacher feedback helpful and motivating (Fong & Schallert, 2023; Graham et al., 2015). Nevertheless, providing teacher feedback can be challenging due to large class sizes, time constraints, and language learners' need for more personalized and actionable feedback (Williams, 2024). In addition to providing

immediate and comprehensive feedback that saves teachers time, AI tools offer several feedback-related benefits: (1) offering increased adaptability, interactivity, and practicality for the L2 student (Kurt & Kurt, 2024); (2) supporting students at different proficiency levels or those who have different learning needs (Guo & Wang, 2023); (3) offering language learners explanations, personalized solutions, and suggestions for improving their L2 writing (Zhang, 2024); and (4) challenging students to achieve specific L2 learning goals in a self-directed manner (Kurt & Kurt, 2024).

These benefits can lead to improved writing skills (Baidoo-Anu & Owusu Ansah, 2023). Specifically, research shows that students receiving such feedback improved not only their grammar, lexical density, syntax, and vocabulary but also the overall quality of their writing (Yang et al., 2023; Zou & Huang, 2023). Students have reported that such feedback enhances their comprehension because it is comprehensive and explained well (Zhang, 2024) while enhancing their engagement in writing in the target language (Cheng et al., 2023). Some researchers have reported that students find such feedback helpful, motivating, and even preferable over other feedback types (Fong & Schallert, 2023). Yang et al. (2023) mapped students' interactions with AI tools for feedback and found they engaged in a "dynamic process, in which students' responses changed from the initial mechanical responses at the discrete language level to more considered approaches in response to machine feedback" (p. 3837).

AI as a Vehicle to Personalize Learning and Build Engagement. AI can also personalize student learning (Su & Yang, 2022). Baskara and Mukarto (2023) reported that ChatGPT's personalization capability can help WL instructors create practice exercises that align with the L2 learners' proficiency levels, interests, and teachers' objectives. They suggested that these targeted practice activities can improve learners' L2 abilities and motivation. These tools have been shown to give instructors the ability to develop a more engaging learning experience for students (Su & Yang, 2023). Such large language models may also be able to positively influence L2 learners' motivation with respect to writing (Marzuki et al., 2023). Ali et al.'s (2023) findings suggest that ChatGPT-based teaching is motivational for language learners and that teachers should use it as a learning tool instead of avoiding it out of fear.

Concerns with AI in Education

While AI tools such as ChatGPT can serve as a valuable assistant in education, many concerns have arisen in the literature, beyond the reality that these tools currently *hallucinate*, or create inaccurate statements or feedback (Fuchs, 2022; OpenAI, 2022). These concerns include: (1) bias, data security, and inaccuracies (Almansor & Hussain, 2020; Perkins, 2023); (2) academic integrity breaches such as plagiarism, cheating, and academic fraud (Lund & Wang, 2023; Ray, 2023); (3) user over-reliance, which can hinder critical thinking and writing abilities (Bishop, 2023; García-Peñalvo, 2023); and (4) disagreements between learners and teachers with respect to acceptable generative AI usage (Barrett & Pack, 2023). Researchers have called for explicit guidelines and teacher professional development on integrating generative AI into educational contexts (Barrett & Pack, 2023) and have noted that additional safety guidelines are needed to ensure the proper use of this technology (Castro, 2023). Barrett and Pack (2023) point out the need for increased

professional development and policy guidelines at the institutional level. Karataş et al. (2024) noted that while AI has led to an increase in curiosity about the influence of AI (notably ChatGPT) on education and on L2 teaching and learning, they stress the need to recognize "the indispensable role of human expertise" (p. 19344). Large language models like ChatGPT may grapple to comprehend the complexities and nuances of human language, which can lead to incorrect responses as well as misunderstandings.

Given the current landscape, AI's use in L2 teaching and learning requires further investigation to ensure responsible integration, mitigate pitfalls, and maximize benefits for enriching teaching and learning WLs.

Instructors' Perceptions of Using AI

While the literature suggests that AI can be used to teach WLs, there is currently a dearth of research on the topic of WL educators' perceptions of using it (Espartinez, 2024). Findings from Iqbal et al.'s (2023) interviews with 20 higher education faculty members indicated that most faculty members want more information about AI and more professional development about how to implement it to make informed decisions. In terms of L2 writing development, Barrett and Pack's (2023) study on perceptions regarding the appropriate use of generative AI in the writing process revealed a need for explicit guidelines and teacher training on how to integrate AI into their writing-oriented lessons.

Two AI Choices

This study focuses on two AI chatbots: ChatGPT 5.1 and Microsoft Copilot. ChatGPT—Generative Pre-trained Transformer—is an advanced online AI chatbot created by developers at OpenAI that uses a large language model called a Generative Pre-trained Transformer. It allows users to enter prompts to receive humanlike text, images, or even videos that are created by AI (OpenAI, 2022). Much like other large language models, ChatGPT was trained on a much larger dataset (i.e., texts from a very large web corpus) and has shown state-of-the-art performance on an impressive range of natural-language tasks from translation to question answering and composing coherent essays at amazing speed. It can read a variety of WL scripts and contains additional features (e.g., attachment upload and voice production).

Copilot is a chat-based AI generative assistant that has natural language processing ability and machine learning algorithms that analyze user behaviors, preferences, and patterns (Microsoft, 2025). Copilots, as they are known, "have specialized functionality based on their users and use cases" (p. 1). Some Copilots are experienced standalone applications, while others are integrated into Microsoft's proprietary devices, products, and services. For example, Copilot can be used with *Microsoft Word*, *Excel*, *PowerPoint*, and *Teams* for tasks such as document creation, data analysis, and project management. Via Outlook, Microsoft 365 Copilot can help summarize key action items such as lengthy email conversations. Additionally, it can be used within Microsoft Azure to help automate infrastructure management and optimize cloud workloads. Microsoft

offers both free and paid versions of Copilot. Both ChatGPT and Copilot can communicate in different languages.

Conceptual Framework: Identify-Determine-Ensure-Evaluate (IDEE)

In an effort to align our research with best practices in curricular development, the Identify-Determine-Ensure-Evaluate (IDEE) framework (Su & Yang, 2023), a backward design framework for educational curriculum planning (Wiggins & McTighe, 2005), was used as a lens for the present exploratory study from the perspective of WL instructors at the United States Air Force Academy (USAFA). This approach allowed the researchers to (1) Identify the desired learning outcomes, (2) Determine the appropriate level of automation, (3) Ensure ethical concerns, and (4) Evaluate the effectiveness of using ChatGPT. Although Su and Yang (2023) developed this four-part framework specifically for ChatGPT use for educational purposes, its underlying emphasis on intentional instructional alignment and evaluation reflects broader curriculum design principles in general (e.g., Chapter 1 in Wiggins & McTighe, 2005, pp. 13–34) and can be extended to other generative AI applications in educational settings (Su & Yang, 2023).

***Identify Desired Outcomes*.** As a first step in the educational process, the identification of the objectives is important. Wiggins and McTighe (2005) advanced the notion that it is vital to know what knowledge is worth being familiar with, what knowledge and skills should be mastered, and which understandings can be considered enduring. That is, information that is important to remember once students have completed a course. Deng et al. (2025) caution that "a significant knowledge gap exists regarding its impact across different learning outcomes" (p. 105224). Jensen et al. (2025) warn that a failure to examine and understand such impacts can lessen the quality of learning as well as raise concerns about academic integrity. Therefore, it is important to align desired curricular outcomes with any technology used. With respect to the present study, the overall objective was to gain insight into WL instructors' perceptions of using AI for instructional purposes.

***Determine the Appropriate Level of Automation*.** Su and Yang (2023) noted that "depending on the objectives, it may be appropriate to fully automate the teaching or learning experience using educative AI or to use it as a supplement to traditional teaching methods" (p. 4). Thus, instructors can use AI for multiple purposes (e.g., creation of practice exercises, authentic reading materials) and such creations can be customized to the individual students' needs. In the case of the present study, AI can provide a more personalized learning experience for language learners whereby the technology can serve to "encourage teachers to reflect on educational content and trust between teachers and students" (Sun & Yang, p. 7). By doing so, language learners can receive increased targeted instruction based on their individual needs. Instructors can determine the level of automation on a continuum ranging from fully automated AI teaching and learning to occasional use to meet course outcomes and learning objectives.

Ensure Ethical Considerations. Su and Yang (2023) go on to state, "The ethical implications of using educative AI must be carefully considered" (p. 4) as not all technologies impact all users in a similar fashion. With respect to the large consumption of energy needed to operate large

language models like ChatGPT, the International Energy Agency (2025) noted that US power consumption is "on course to account for almost half of the growth in electricity demand between now and 2030" (p. 1). The economy is predicted to devour more electricity in 2030 for processing data than for manufacturing all energy-intensive goods combined (e.g., aluminum, cement, chemicals, and steel). As a second ethical dilemma, Gašević et al. (2023) cautioned that some student populations might be at greater risk of harm than others because the data used to train AI large language models have bias embedded within them or within the process of creating algorithms. Such bias can produce problematic results that can be harmful to certain populations. Thus, ethics, bias, and fairness are central to AI's growing influence. Su and Yang (2023) highlight the importance of ensuring that ChatGPT's feedback is free from bias and based on objective observations. Additionally, they posit that ChatGPT should not replace the important role of human coaches in providing support and guidance to instructors. With respect to the present study, the researchers acknowledge that as AI models continue to mature, they can create bias and must be monitored carefully regardless of the level of automation selected by the instructor.

Evaluate Effectiveness. Finally, researchers must also evaluate the effectiveness of ChatGPT in achieving the desired outcomes. Effectiveness can be measured by analyzing the impact of feedback from instructors using AI for educational purposes. Su and Yang (2023) advanced the notion that effectiveness can be achieved via teacher evaluations, feedback surveys, and other assessment tools. To that end, the researchers developed a participant questionnaire to gauge participants' perceptions of using AI to teach WLs.

The purpose of the present study was to explore instructors' perspectives of using Generative AI (GenAI) tools in the WL classroom, noting that "to date no consensus has arisen regarding what constitutes appropriate use of GenAI in higher education" (Barrett & Pack, 2023, p. 2). The following research questions guided this study:

The present study is guided by the following research questions:

1. With respect to the IDEE framework:
    a. Did the participants feel that using AI in their instruction helped meet the desired course outcomes?
    b. Did the participants feel that the artificial intelligence they employed in their instruction was at the appropriate level of automation?
    c. Did the participants feel that it was ethically appropriate to use AI in their instruction given possible bias and accuracy?
    d. Did the participants feel that the use of AI in their instruction was effective for student learning?
2. What were the advantages and disadvantages of using AI for instructional purposes?
3. Under which conditions did WL instructors choose not to use AI for instructional purposes?
4. How did WL instructors employ AI pedagogically?

METHODS

Rationale

The researchers recognize the potential of GenAI tools in the field of WL teaching and learning. The purpose of this study was to explore if instructors teaching WLs were using AI for educational purposes at USAFA given that the Department of Defense (United States Air Force, 2024) places a premium on second language learning, what AI platforms were being used, perceptions of the (dis)advantages of using AI for teaching WLs, and their use of AI to teach WLs as framed by the IDEE framework.

Procedures

Following IRB approval in July 2025, instructors (*N*=41) in the Department of Languages and Cultures at the US Air Force Academy received an email inviting them to participate in the present study with a link to a two-part questionnaire about (1) their perceptions and their use of GenAI tools for instructional and assessment purposes along with (2) a section requesting participant demographics. Following data collection, the researchers used IBM SPSS Statistics 27.0 to analyze the participants' ratings to the statements on the questionnaire as well as the demographic variables.

Questionnaire

In order to create a questionnaire to elicit participants' perceptions about using GenAI tools in the field of WL teaching and learning, the researchers reviewed the literature and developed a 10-item questionnaire using a 6-point Likert scale (1 — Strongly Disagree to 6 —Strongly Agree) with a participant demographic sheet and several open-ended questions (see Appendix A). The researchers field-tested the questionnaire with four colleagues using *Google Forms* to assess its functionality as well as its content validity and reliability. The reliability coefficient for the Likert scale questionnaire statements was high (Cronbach's alpha was .88), indicating that (1) the respondents' answers to the statements were consistent and that (2) the coefficient shows satisfactory consistency for research purposes (Henson, 2001). In addition to the Likert scale statements, the researchers asked several open-ended questions about the advantages and disadvantages of using GenAI tools for instructional purposes, if they do not use GenAI tools for instructional purposes, why they choose not to use it, and finally how those that use GenAI tools for instructional purposes employ it pedagogically. Data collection concluded in August 2025.

Participants

Of the 41 WL instructors at USAFA, 19 chose to complete the questionnaire. Eleven (58%) self-reported as male. Thirteen participants self-reported their ethnicity as White/Caucasian with two reporting as Latino/a, three as Asian, and one as multiracial. Six reported being in the US Air Force while the remaining participants reported being civilians. All of the participants held graduate

degrees (masters, *n*=7; doctorate, *n*=12) and served for an average of 17.87 years (*SD*=10.85) as an instructor of their WL. The languages they teach include Arabic (*n*=1), Chinese (*n*=3), French (*n*=3), German (*n*=2), Japanese (*n*=3), Portuguese (*n*=2), Russian (*n*=2), and Spanish (*n*=3).

Participants' mean age was 48.61 (*SD*=9.44). Thirteen reported using GenAI tools in their instruction. Of those individuals, when asked which tool was used, 47% of the participants (*n*= 9) reported using ChatGPT while 16% reported using Microsoft CoPilot (*n*=3) and one using a military application.

FINDINGS

Given the small sample size of this exploratory study, data are reported with respect to Su and Yang's (2023) IDEE conceptual framework. Participant responses from the 6-point Likert scale were collapsed and reported here to reflect only agreement or disagreement with the 10 questionnaire statements.

With respect to the first of four research questions representing the four pillars of the IDEE framework (Su & Yang, 2023), 84.6% of the participants (*n*=11) agreed that using GenAI tools in their instruction helped meet course outcomes. However, when asked if it is appropriate to use AI platforms for the grading of language learner work, the 13 participants were almost equally divided. Fifty-four percent (*n*=7) disagreed while 46.2% (*n*=6) expressed agreement. The second of four IDEE research questions was addressed by asking participants about whether the GenAI tools they employed in their instruction were at the appropriate level of automation. Almost all of the respondents (84.6%) agreed that not only did the tool as a supplement in instruction help improve students' L2 acquisition, it also increased student motivation to acquire the new language, suggesting that the use of GenAI tools in the WL classroom helped personalize teaching and learning (Su & Yang, 2023).

For the third IDEE research question, regarding whether it was ethically appropriate to use GenAI tools in their instruction given possible bias and accuracy, 92.3% of the participants (*n*=12) agreed that instructors should be aware of such biases. Almost three quarters of the participants (69.2%) expressed that student data (e.g., student essays) should not be stored and shared as part of the AI model data set. However, almost all the participants (84.6%) agreed that considering its impact on the environment, the large amount of energy used to power AI applications is worth its use for WL learning and teaching. Furthermore, 92.3% (*n*=12) expressed agreement that the Department of Languages and Cultures should incorporate more GenAI tools with respect to student learning. Regarding the fourth IDEE question, about the evaluation of the effectiveness of using AI tools for achieving desired outcomes for student learning, most of the 13 participants (*n*=11) felt that their use of GenAI tools was effective and that using the tools increases their motivation to teach WLs (*n*=10).

Next, turning to research question two regarding participants' perceptions of the advantages and disadvantages of using GenAI tools for instructional purposes, five of the 13 respondents

mentioned that GenAI tools can save instructors precious time preparing lessons, can help evaluate WL written artifacts (both formative and summative), and can simplify authentic literature for elementary- and intermediate-level learners. A 27-year-old first-year instructor with a master's degree stated that "using ChatGPT saves me a lot of time while juggling other duties." Three others reported that ChatGPT rapidly helps improve target-language writing yet caution that the instructor-created prompt to evaluate learners' written artifacts must be developed carefully so as not to provide learners' inaccurate feedback. A third-year Spanish instructor with a master's degree wrote: "When I develop a prompt for providing corrective written feedback for my students, I have to tell ChatGPT exactly what I want it to review the student writing pieces for and for which grammatical features I do not want it [ChatGPT] to provide feedback."

Other responses about the advantages of using GenAI tools in the WL classroom revolved around the creation of rubrics for the assessment of productive skills (i.e., speaking, writing), searching for creative ideas to teach grammar and reading, and the creation of lesson plans. With respect to the disadvantages of using GenAI tools for instructional purposes, participants mentioned the inaccuracy of responses from ChatGPT and Copilot, an overdependence on technology, poor translation ability from English to the target language, security, privacy, and environmental concerns. A 60-year-old male instructor with a doctoral degree stated that "language teachers still need to read through AI-generated output to verify that the material is suitable [for learners] (both content- and level-wise)."

Turning to the third research question about why the participants chose not to use AI, the notions of security and privacy were mentioned. Additionally, several general philosophical, ethical, and environmental concerns were raised. Specifically, a male instructor holding a doctorate with almost 20 years of experience in the classroom pointed to "the massive amounts of water and energy used in places where water is scarce for crops and people." Others reported that they needed professional development opportunities because they were not sure how the chatbots worked or how they could be applied pedagogically.

Finally, with respect to the final research question about the participants employing GenAI tools pedagogically, much like responses about the advantages of using these tools in the WL classroom, the participants stated that they use them for multiple purposes. For beginning and intermediate learners, instructors cited using GenAI tools to create practice exercises (e.g., contextualized cloze activities) that are similar to those in their textbooks and online homework. Additionally, the participants reported that ChatGPT is adept at the provision of corrective written feedback on short written assignments. For learners at the more advanced levels, instructor responses varied from using GenAI tools when teaching literature to simple excerpts from popular literary pieces to interpreting literary critiques from multiple perspectives to summarizing lengthy news stories about current events. One response regarding languages using non-Roman script was mentioned by a Chinese instructor. She stated that the language learning model for AI platforms created in English (e.g., ChatGPT) tends to lack specific data and proficiency in WLs, which may provide less trustworthy output. This shortcoming made it difficult to use GenAI tools for her classes.

In sum, we found that participants perceived that using GenAI tools to teach WLs meets course objectives, requires effort to develop a quality prompt for the AI tool to deliver meaningful feedback, is effective for multiple purposes, and has certain distinct advantages and disadvantages.

DISCUSSION

The purpose of this study was to examine WL instructors' perceptions of using GenAI tools for a variety of purposes. The Department of Defense continues to place a premium on language and culture-enabled military personnel (United States Air Force, 2024). Findings from this study have important implications for the field with respect to WL instructors' perceptions of using AI for instructional purposes. As mentioned earlier, growing fascination with AI along with its utility is indisputable (Pazzanese, 2020). AI is advancing at unprecedented speed, and global AI spending is projected to reach $1.5 trillion in 2025 and to exceed $2 trillion by 2026 (World Economic Forum, 2025). With such investment, education may be transformed dramatically. Yet challenges remain, not the least of which is teacher perceptions. We will discuss our findings as they are framed in Su and Yang's (2023) IDEE framework.

Identify Desired Outcomes

When viewing the findings through the IDEE framework, most of the participants agreed that the GenAI tools they use, primarily ChatGPT and Microsoft Copilot, helped meet desired course outcomes and learning objectives even though the respondents were divided on AI's ability to evaluate student work. Nevertheless, such findings are encouraging and begin to fill the gap of research on AI's ability to meet educational objectives (Deng et al., 2025). Clearly articulated learning objectives—the purpose of instruction—are critical, especially when integrating AI-oriented teaching and learning activities. Objectives should describe the purpose using an action verb and express the expected performance and conditions under which the performance should occur (Hildebrandt & Swanson, 2016). When written appropriately, AI-oriented learning objectives convey instructors' expectations in terms of what students should know and be able to do after completing a course of study. Additionally, these carefully worded objectives should help improve student performance on assessments (Orr et al., 2022). According to Paesani (Glisan & Donato, 2017), via the process of designing the curriculum and setting course objectives, "what mattered more to me was not coverage of content or transmission of information, but the opportunity for students to apply what they were learning in practical, yet theoretically grounded ways" (p. vii). Integrating AI into instruction in the WL classroom in a theoretically grounded way can be beneficial for both L2 learners and their instructors.

Determine the Appropriate Level of Automation

In addition to meeting learning objectives, the participants agreed that instructors can use GenAI tools at an appropriate level of automation in order to achieve satisfactory results, even though these tools can be fallible and can provide inaccurate responses. Su and Yang (2023) included in their framework the notion that there is a continuum for AI use, stating, "depending on the objectives, it may be appropriate to fully automate the teaching or learning experience using educative AI or to use it as a supplement to traditional teaching methods" (p. 4). While researchers (Almansor & Hussain, 2020; Perkins, 2023) have identified potential concerns with AI's use for educational purposes (e.g., bias, data security, inaccuracies), the determination of an appropriate level of automation becomes necessary. For example, most of the participants (84.6%) agreed that using GenAI tools as a supplement to their instruction helped improve students' L2 acquisition. The supplemental use of GenAI tools also increased student motivation to acquire the new language with a limitation that it should not be allowed to store students' personal data. By addressing such concerns, instructors can limit risks to academic integrity (e.g., plagiarism, cheating) and personalize learning for the students. Participants believe that shaping the AI learning experience to the students, which includes content, goals, and pace of learning, can enhance student academic achievement, engagement, and motivation. Technology tools have the potential to meet students where they are and foster a deeper understanding of the material (Shrum & Glisan, 2015); with the growth and development of AI, these capabilities have only increased. Moreover, in our study, we found that participants view AI-oriented learning as being able to impact student persistence in that motivated students tend to learn more deeply, produce higher quality work, and have a stronger sense of efficacy in the face of challenges. As always, increasing student motivation holds serious implications for teaching and learning as it is the driving force behind students' desire to learn, engage, and succeed in both the classroom and in future endeavors (Hulleman & Hulleman, 2018).

Ensure Ethical Considerations

Along with determining the appropriate level of automation, there are ethical considerations that must be taken into consideration when using GenAI tools for educational purposes. First, the large quantity of electricity needed to power AI is extraordinary even though almost all of the participants (84.6%) reported that this impact on the environment was worth its use for WL learning and teaching. Second, from an educational perspective, some student populations might be at greater risk of harm than others due to embedded bias from the process of creating algorithms (Gašević et al., 2023). With respect to the present study, the researchers acknowledge that as AI models continue to mature, they must be monitored carefully regardless of the level of automation selected by the instructor. Findings from the present study align with earlier scholarship emphasizing the importance of human oversight and maintaining human guidance in technology-enhanced learning environments (Bayne, 2015; Roll & Wylie, 2016). Within the context of the Air Force Academy, the participants reported that student data (e.g., student essays) should not be stored and shared as part of the AI model data set. This aligns with Su and Yang (2023) who warned that there is potential for such technology to collect sensitive

information from students without their prior knowledge or consent. Similarly, as Su and Yang (2023) also note, AI should be monitored so that large language models such as ChatGPT should not diminish the important role of human coaches in providing support and guidance. The authors strongly advocate that large language models such as ChatGPT should not replace the vital role of human instructors.

Evaluate Effectiveness

While such ethical issues are clearly important, results from the present study showed that 92.3% of the participants believed that the departmental faculty should integrate more GenAI tools into WL teaching and learning. The participating instructors reported using these tools to create contextualized practice exercises, provide corrective written feedback on writing assignments, and build interpretive mode exercises allowing students to experience multiple perspectives from literary excerpts. Additionally, most of the participants expressed that their use of GenAI tools was effective in saving them preparatory time, providing assistance when evaluating student-created written artifacts, and even simplifying authentic literature for elementary- and intermediate-level learners. Such findings align with other researchers who suggest that AI can be used to develop intriguing lesson plans, such as those involving gamification (Çobanoğullari, 2024). AI can help instructors create writing prompts and find authentic L2 materials such as dialogues and reading passages (Baidoo-Anu & Owusu Ansah, 2023). Additionally, results of the current study align with Krashen's (1981) seminal principle about comprehensible input. Enhancing and personalizing input in the target language so that it is slightly above a learner's current level can lead to meaningful acquisition of vocabulary and grammatical principles (Krashen, 1981); AI tools can help students and teachers in this area. However, the participants noted that ChatGPT and Co-Pilot sometimes provide inaccurate responses [input], suggesting that instructors need to examine the output from these two AI platforms to verify its accuracy. As noted by one of the participants teaching Chinese, GenAI tools trained on one language tend to lack specific data that can make their output in a different language less trustworthy. Thus, the selection of which GenAI tool to use for teaching WLs is an important consideration. Finally, participants in this study reported that they need more professional development opportunities to develop and maintain skills in these areas, similar to previous researchers (Barrett & Pack, 2023; Iqbal et al., 2023).

CONCLUSION

AI clearly holds potential for innovation in the field of WL teaching and learning as demonstrated by the findings from the present study. Given the wide range of implications from the present research, this study has elucidated certain limitations. Since USAFA is a unique institution of higher education, a replication study from a public institution of higher education would provide additional insights. Findings from this study should also be interpreted with caution due to its small sample size. Even though almost half of the department's instructors chose to participate in the study, further research involving a larger sample size is warranted. Additionally, self-reported data are not verifiable, and inaccuracies can be present such as social desirability bias

(i.e., responding untruthfully to appear favorable) and recall bias. As a result of these limitations, the authors call for further research on the use of AI for teaching world languages.

Lastly, qualitative interviews with instructors would also be insightful to provide a deeper understanding of their perceptions of using AI for educational purposes. Avenues for further research might include overviews of successful teaching practices using large language models for specific purposes such as the development of productive skill activities (i.e., speaking and writing exercises) at different proficiency levels (e.g., Novice-High, Intermediate-Mid). Furthermore, studies regarding second language learners' perceptions of using AI to accelerate their proficiency in the target language would also provide important understandings.

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APPENDIX A

Questionnaire and IDEE Framework

The IDEE framework for using ChatGPT in education. The number in parentheses after each statement reflects the domains of the framework guiding this study.

1. **Identify the Desired Outcomes:** Before using ChatGPT or other generative AI in education (or "educative AI"), it is important to identify the objectives of the application. This ensures that the use of technology aligns with desired outcomes.
2. **Determine the Appropriate Level of Automation:** Depending on the objectives, it may be appropriate to fully automate the teaching or learning experience using educative AI or to use it as a supplement to traditional teaching methods.
3. **Ensure Ethical Considerations:** The ethical implications of using educational AI must be carefully considered, including potential biases, and their impact on teachers and students.
4. **Evaluate the Effectiveness:** It is important to evaluate the effectiveness of educative AI in achieving the desired outcomes.

Instructions

Part 1. **Please answer the following questions about using Artificial Intelligence.**		
1. Do you or have you used artificial intelligence for teaching the language(s) you teach at USAFA?	**Yes**	**No**
a. If you answered Yes to the first question above, please elaborate on what you use artificial intelligence for (e.g., creating lesson plans, assessments, practice exercises?		
b. If you answered Yes to the first question above, what platform(s) do you use (e.g., ChatGPT)?		
c. If you answered Yes to the first question above, what do you feel are the advantages of using artificial intelligence for teaching the language(s) you teach at USAFA?		

d. If you answered Yes to the first question above, what do you feel are the disadvantages of using artificial intelligence for teaching the language(s) you teach at USAFA?	
2. If you answered No to the first question above, why have you chosen not to use artificial intelligence as an instructor?	

Part 2. If you answered Yes to the first question above, please answer the following questions by rating your level of agreement from Strongly Disagree to Strongly Agree.

	Strongly Disagree	**Disagree**	**Slightly Disagree**	**Slightly Agree**	**Agree**	**Strongly Agree**
	1	2	3	4	5	6
1. Do you feel that using artificial intelligence for teaching the language(s) you teach at USAFA is effective for meeting course outcomes? (1)						
2. Do you feel using artificial intelligence for teaching the language(s) you teach at USAFA helps improve student acquisition of the language(s) you teach at USAFA? (1)						
3. Do you feel that the Department of Languages and Cultures should incorporate more use of artificial intelligence for cadet learning? (2)						
4. Do you feel the large amount of energy used to power artificial intelligence applications such as ChatGPT is worth its use for world language teaching and learning purposes considering its impact on the environment? (3)						
5. With respect to one's privacy, do you feel it is appropriate that cadets' data (e.g., short essays the cadets						

write in class, practice exercises) should be stored and shared as part of the artificial intelligence language model dataset? (3)						
6. Given the quantity of data input into an artificial intelligence model receives (e.g., language, demographics), do you feel that there is an inherent bias in these systems that cadets and instructors should be aware of because these models can provide inaccurate, misleading, and unethical information? (3)						
7. Do you feel that it is appropriate to use artificial intelligence platforms (e.g., ChatGPT) as an aid for grading cadet work? (3)						
8. Given the advantages artificial intelligence offers for instructors (e.g., saving time grading, preparing exercises), do you think using artificial intelligence in your instruction increases your motivation to teach the language(s) you teach at USAFA? (4)						
9. Given the advantages artificial intelligence offers for instructors (e.g., saving time grading, preparing exercises), do you feel the use of artificial intelligence for teaching world languages increases cadet confidence to acquire the target language? (4)						
10. Do you think that using artificial intelligence to aid your instruction helps you to meet course outcomes for cadets? (4)						

Comments: _____

Please respond:

Gender: Male(1) ____ Female(2) _____

Ethnicity: White/Caucasian(1) _____
Latino/a(2) _____
African American(3) _____
Asian(4) _____
Pacific Islander(5) _____
Multiracial(6) _____

Age _____

Language(s) you teach at USAFA _____
Are you a member of the military? Yes ____ No _____
How many years of teaching the language(s) you teach do you have in total? _____

Highest Degree Earned: B.A. / B.S. _____ Masters _____ Doctorate _____