

AI AS AN ACCELERATOR OF GENDER EQUALITY IN LANGUAGE EDUCATION PRACTICE

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ABSTRACT

Artificial intelligence (AI) is increasingly transforming language education through chatbots, generative AI, machine translation, automated feedback, speech recognition, and intelligent tutoring systems. While these tools are often discussed in relation to language proficiency, learner autonomy, motivation, and personalized instruction, their role in advancing gender equality remains underexplored. This review examines how AI can act as an accelerator of gender equality in language education practice by supporting inclusive access, bias-aware feedback, learner empowerment, gender-neutral language practices, inclusive content, and critical AI literacy. It also addresses the risks of AI-powered language tools, including stereotypical gender associations in large language models, biased machine translation outputs, unequal representation in chatbot interactions, digital access gaps, and over-reliance on AI-generated content. The article proposes a gender-responsive AI language education framework built around inclusive access, bias-aware content, inclusive pedagogy, learner empowerment, critical AI literacy, and teacher mediation. It argues that AI can promote equitable language learning only when guided by responsible design, teacher judgement, learner reflection, and ethical policy support. The review highlights practical strategies such as AI-based text auditing, inclusive prompt design, translation bias activities, counter-stereotype storytelling, chatbot speaking practice, and critical reflection on AI outputs. It also highlights the importance of teacher mediation, gender mainstreaming in policy, and ethical governance in ensuring that AI contributes to equitable language education. Overall, AI should be viewed not as a neutral tool, but as a pedagogical and social force that can either reproduce or reduce gender inequality.

KEYWORDS: Artificial intelligence; language education; gender equality; AI literacy; inclusive pedagogy; bias-aware learning

1. INTRODUCTION

Artificial Intelligence (AI) is making significant strides in revolutionizing the field of language learning, providing students with novel opportunities for accessing, practicing, and assessing language. AI-powered resources encompass chatbots for interactive practice, generative AI for text generation and dialogue development, machine translation for language support, automated feedback on grammar and composition, speech recognition for pronunciation, and intelligent tutoring systems for personalized learning. These technologies are increasingly used in pedagogical settings to provide personalized feedback, support learner confidence, and enable self-paced participation. Early studies focus on the role of AI in adaptive instruction, personalized learning, and data-driven educational decisions, particularly in educational settings where there is significant variation in the needs and capabilities of learners (Luckin & Holmes, 2016).

Language teaching and learning is not neutral; it carries identity, culture, and social norms, including gender norms. Classroom activities, exercises and interactions can reinforce or challenge stereotypes. As AI becomes more prevalent in learning, worries emerge because of the potential for social inequities and distorted representation in the systems' training dataset. While the use of AI in education offers opportunities for inclusive learning practices, questions arise around fairness, representation, teacher responsibility, and learner agency. It is pointed out in the research that using AI should be linked with sustainable development and with access and equity, and cannot be considered as a good thing per se (Pedro, et al., 2019).

The rationale for this review is twofold: first, AI is becoming increasingly influential in language education; second, its impact is dual in nature. AI can support inclusion by tailoring learning experiences, offering feedback, improving access to materials, identifying bias, and creating private practice spaces for learners who may feel uncomfortable participating in classroom settings. However, AI can also perpetuate stereotypes, reproduce gendered language, reinforce gendered assumptions about occupations, and deepen digital divides.

These dynamics make it important to examine AI not only as a pedagogical tool but also as a socio-educational force that shapes gendered participation. The study of AI in education underscores its potential benefits and the importance of addressing pedagogical roles, ethics, and responsible application (Holmes et al., 2019).

Previous studies in AI in education are primarily on the performance, automation, learning analytics, and institutional adoption, with little attention paid to the gender equity aspect. The study of AI also reveals the possibilities of future applications for intelligent systems but also notes the need for a human-centered approach to design, which is an educative

objective, and responsible integration (Hwang et al., 2020). These concerns are especially important in language education, where AI affects participation, representation, and learners' critical awareness of gendered language practices. The aim of this review is to examine how AI can act as an accelerator of gender equality in language education practice by supporting inclusive learning opportunities, bias-aware content, learner empowerment, and critical AI literacy.

The review addresses the following research questions:

- How does AI influence language teaching and learning?
- Can AI reduce gender disparities in educational outcomes?
- What forms of gender bias exist in AI-powered language tools?
- How can educators use AI to promote gender equality in language classrooms?

Providing answers to these questions places AI in language learning within a framework of innovation and responsibility. However, prior research has demonstrated that AI applications tend to underrepresent the role of the educator (Zawacki-Richter et al., 2019); teachers should be seen as interpreters, mediators, and as having an ethical responsibility for incorporating AI tools. This conceptual work highlights the importance of including several guidelines of AI integration in education: learner-centered, teacher-supported, and human-AI collaborative approaches, essential for gender-responsive education. The role of AI should support teaching and learning to be inclusive, critical, and equitable, not take the place of teacher judgment. Mapping these opportunities and limitations helps clarify how AI can support inclusive, critical, and equitable language learning without replacing teacher judgement.

2. Conceptual Background: AI, Language Education, and Gender Equality

Language learning is a social activity which influences learners' identity, culture, role and gender stereotypes. Classrooms, textbooks, examples, dialogue, and computer activities are opportunities for reinforcing or challenging stereotypes. Occupational terms, pronouns, classroom conversations, and descriptions of familial and/or professional roles can have implicit assumptions about masculinity, femininity, authority, care, and participation. In this context, gender-neutral language becomes an important part of inclusive education because it encourages the use of words, examples, pronouns, classroom dialogues, and learning materials that do not unnecessarily privilege one gender or reproduce stereotypical gender roles. In AI-supported language education, gender-neutral language is especially relevant because AI-generated texts, translations, chatbot responses, and automated feedback may either reinforce gendered assumptions or help teachers and learners identify and revise them. Thus, while language learning has an aspect of acquiring grammar, vocabulary and communication skills, it is also a place where the learners meet with social meanings and gendered representations (Wang et al., 2026).

AI is increasingly used in language education through chatbots, generative AI, automated writing evaluation, machine translation, speech recognition, and intelligent tutoring systems. These tools support conversation practice, writing development, pronunciation training, vocabulary learning, grammar correction, and personalized learning pathways. According to bibliometric data, the use of AI in language learning has gained a lot of momentum over the last few years and has been a major research area, including the growing interest in the use of language learning chatbots, adaptive systems, automated feedback, and intelligent tutoring (Rahman et al., 2024). The expansion paves the way for more flexible and learner-centred, and accessible, language education.

Education has equality of access, representation and participation as a core educational objective. It is directly related to SDG 4 (quality education) and SDG 5 (gender equality) which focuses on equal opportunities for all learners (UNESCO, 2024a). AI can help achieve these goals when designed to deliver personalised learning, balanced representation, content that's inclusive and consistent feedback for learners across groups (UN Women, 2024). The potential for generative AI and other education technologies to regenerate social stereotypes, biased assumptions, or exclusionary language in the absence of human oversight, however, means that significant guidance must be given to help prevent this (UNESCO, 2023).

AI, language and gender is a promising and risky intersection that makes for a fascinating study. AI can help address inequality in several ways, such as through inclusive design, the detection of bias, adaptive support and gender-specific educational content (UNESCO, OECD, & Inter-American Development Bank 2022). As AI systems are built, they can also embed subconscious gender norms in the data, algorithms, and institutional processes. To build an AI that is respectful to gender, one must find representative data and develop the AI with diverse teams and engage in bias mitigation (Data-Pop Alliance, 2024). Transparency, accountability, and institutional responsibility are therefore central to gender-responsive AI policy in education. The following concerns are of particular relevance to the field of education, where AI systems have an impact on access, participation, language exposure, and learners' confidence (UNESCO, 2024b). Also, a wider global picture reveals that technology may have a negative or positive impact on gender gaps, depending on how it is governed and implemented (United Nations Economic and Social Council, 2024).

3. Current Applications of AI in Language Education

3.1 AI Chatbots for Language Practice

AI chatbots in language learning are prevalent for a range of applications, from supporting students' speaking to enhancing vocabulary learning, grammar practice, dialogue building, engagement, and confidence. They offer interactive areas where students can practice communication in a repeated fashion without having to face a direct assessment in the classroom. The systematic evidence indicates that using a chatbot in language instruction can enhance language learning through structured learning and feedback, and provide opportunities for learner participation (Li et al., 2025b). AI-powered chatbots can also be beneficial in second-language acquisition by providing assistance with language production, writing, vocabulary, grammar, and interaction via flexible conversational tasks (Wiboolyasarini et al., 2025). Dialogue-based

computer-assisted language learning also reveals that meaningful foreign-language practice is possible with the support of computers which are used for dialogue interaction, provided that tasks are pedagogically structured (Bibauw et al., 2019). It has also been found that AI feedback from a chatbot can facilitate grammar learning and error correction, and teacher–student–AI interaction is still essential for directing the use of AI in the classroom (Kim, 2024; Ji et al., 2024).

3.2 Generative AI Tools

Generative AI tools can aid language learning by providing support for writing, grammar explanations and generation, dialogic interactions, task-based learning, and content creation. These tools can produce examples, prompts, model answers, role play conversations and suggestions for revision to practise language flexibly and individually. For task-based language teaching, generative AI has been found to aid classroom tasks when it is made relevant to the clear learning objectives (Li et al., 2025a). In addition, there is some evidence that generative AI can have an impact on language outcomes, affective outcomes (motivation, engagement, confidence), and cognitive outcomes (Saarela et al., 2026). For instructed language learning, intelligent writing assistance is particularly relevant because it can be used to make revisions, comparisons, and refinements to written output (Godwin-Jones, 2022). In addition, recent reviews and empirical studies have demonstrated generative AI's potential to support writing development, feedback and assessment-related tasks, but that it needs to be used with guidance and critical evaluation by teachers (Law, 2024; Woo et al., 2023).

3.3 Automated Feedback and Assessment

Automated feedback and assessment systems support grammar correction, pronunciation practice, writing evaluation, text simplification, and individualized learning recommendations. These systems can provide immediate feedback to learners and help them identify weaknesses in grammar, vocabulary, pronunciation, and written expression. There are growing links between AI-powered feedback tools and new emerging digital learning environments for language, such as language learning bots and ambient learning environments (Godwin-Jones, 2023). Additionally, automated text simplification can be used to assist teachers in adapting texts based on learners' proficiency and class requirements, thereby facilitating differentiated instruction (Liu et al., 2024).

3.4 Machine Translation and Multilingual Support

Translation practice, cross-language comparison, vocabulary building and exposure to a number of languages are facilitated by machine translation and multilingual artificial intelligence tools. They can be used to compare texts in two languages, identify structural differences, and support learners' conceptualisation and sense-making across languages. The intelligent information processing approach is becoming an integral part of the language learning applications based on AI in multilingual learning and flexible language practice (Pikhart, 2020). AI technologies also broaden learners' access to language resources by providing translation, vocabulary support, and multilingual communication in ways that were less accessible in the past (Zou et al., 2023).

3.5 AI for Learner Autonomy

AI helps to promote learner independence through self-paced learning, independent practice, self-regulation, and confidence building. AI tools can be provided for learners to use outside of class for practice, feedback, and tracking, and are able to repeat tasks as needed. The systematic review on AI tools in language education indicates that in language learning, AI can foster learner independence and self-regulated learning by providing flexibility in practicing and tailoring support to the individual learner (Mohebbi, 2025). Empirical studies have also shown that AI-assisted teaching can be an effective way to enhance the English learning results, L2 motivation, and SCL, provided there is a clear pedagogical purpose (Wei, 2023). The evidence found in the meta analysis also supports the positive learning outcomes of AI-assisted personalized language learning in diverse language learning environments (Lee & Lee, 2024).

Table 1 summarizes the main AI tools used in language education, their learning focus, and observed outcomes.

Table 1. AI Tools in Language Education and Their Primary Functions

AI Tool	Learning Focus	Typical Applications	Outcomes	Reference
Chatbots	Speaking, Writing, Vocabulary, Grammar	Conversational practice, dialogue simulation, corrective feedback	Increased engagement, learner confidence, improved language skills	Li et al., 2025b; Wiboolyasarin et al., 2025; Bibauw et al., 2019
Generative AI	Writing assistance, Grammar explanation, Task-based learning	Dialogue generation, content creation, writing prompts	Enhanced writing proficiency, motivation, cognitive engagement	Saarela et al., 2026; Godwin-Jones, 2022; Woo et al., 2023
Automated Feedback	Grammar correction, Pronunciation, Writing evaluation	Real-time error correction, adaptive recommendations	Improved accuracy, self-regulation, individualized learning	Liu et al., 2024
Machine Translation	Translation practice, Cross-language exposure	Multilingual texts, comprehension tasks	Increased cross-linguistic understanding	Pikhart, 2020; Zou et al., 2023

4. AI as an Accelerator of Gender Equality

4.1 Personalized Learning and Equal Opportunity

AI can support gender equality in language teaching by providing personalized support to any student, regardless of gender, cultural background, self-assurance, or classroom participation. AI-driven systems have the potential to tailor learning tasks, feedback, and practice opportunities to individual learners, thereby decreasing the reliance on a one-size-fits-all approach. This is significant for gender equity since those who are less confident, less visible in classroom interactions or influenced by social expectations can also be given targeted academic support. AI literacy and STEAM education insights reveal that the teaching and learning of AI, when designed appropriately, can enhance equitable participation and learners' confidence in technology-rich settings (Cheng et al., 2025).

4.2 Rapid, Consistent, and Bias-Aware Feedback

AI can be used to help achieve gender equality by giving feedback that is rapid, consistent and less reliant on subjective interactions in the classroom. The participation opportunities in a language classroom could be unequal or expectations based on linguistic confidence, fluency, or style of communication as a result of the gendered assumptions that students may have. AI can provide rapid and consistent feedback, but it should not be assumed to be neutral. Automated feedback systems may reproduce linguistic, cultural, or gender biases and therefore require teacher review. The study of AI literacy in teacher learning reveals that teacher understanding plays a pivotal role in the successful and responsible use of AI in teaching (Du et al., 2024). In addition, the competencies required for learners and educators require a focus on AI literacy frameworks, which emphasize the need to recognize where limitations and biases may occur and to be familiar with what AI can and cannot accomplish (Long & Magerko, 2020).

4.3 Confidence-Building and Safe Practice Spaces

AI can provide opportunities for learners who are not confident to speak or participate in the classroom, by offering them a private and low-pressure environment to practice their skills. It is particularly important in the context of language teaching and learning in which anxiety, fear of mistakes, and social judgement have a negative impact on speaking practice. The AI-powered conversation bots enable learners to rehearse dialogues, work on pronunciation, test words and get feedback without having to be exposed to an audience right away. These can contribute to gender equity if they facilitate access to learning by addressing issues of participation that are related to confidence, culture and classroom. Studies on AI-driven conversation bots reveal their ability to boost L2 speaking proficiency and alleviate speaking anxiety, which is beneficial for building L2 speaking confidence in L2 learning settings (Ding & Yusof, 2025).

4.4 Inclusive and Counter-Stereotypical Content Creation

Inclusive content creation can be enhanced by generative AI, which generates content such as examples, dialogue, reading passages, or writing prompts that reflect a variety of gender roles. For instance, language teachers can instruct AI tools to create stories with female leaders, female speakers of languages other than English, gender-diverse speakers, and male caregivers. This can help to question traditional language stereotypes in the teaching materials and to reinforce learners' exposure to the use of inclusive language. Critical AI literacy requires learners to question AI-generated content, recognize potentially embedded assumptions, responsibly guide AI outputs, and understand the social impacts of AI systems (Veldhuis et al., 2025).

4.5 Bias Detection in Language Materials

Gender bias in textbooks, exercises, prompts, dialogues, and classroom examples can also be detected through the use of AI tools. These tools may help teachers identify whether learning materials overrepresent men in leadership roles, underrepresent women in professional or scientific roles, or exclude gender-diverse identities. This process also supports the development of gender-neutral language in classroom materials. Teachers can use AI tools to examine whether texts depend on gender-specific occupational labels, unequal pronoun patterns, stereotypical family roles, or gendered descriptions of ability, leadership, care, and authority. With teacher judgement, such review can help transform language materials into more inclusive resources that represent diverse identities and avoid unnecessary gender marking. This can prove to be beneficial for AI not just as a teaching tool, but also in terms of curriculum review and inclusive material design. Inclusive AI research in education states that bias mitigation must be linked to teacher literacy as teachers must be able to identify, understand, and react to the biased content generated by AI - not treat it as neutral (Oyetade & Zuva, 2025).

4.6 Critical Gender Literacy through AI

AI can be used to assist with important gender literacy in which learners analyse, question and edit AI-generated language. Students can make comparisons between biased and inclusive outputs, identify gendered pronouns or work-related assumptions in texts, and edit texts for fairness and representation. This is a way to engage with AI that's not about just consuming content. AI literacy is now considered a competency required in teacher education to prepare educators for ethical, critical and inclusive use of AI with learners (Sperling et al., 2024). Consequently, AI can facilitate the promotion of gender equality in language education through the reinforcement of participation, representation, bias awareness, and critical engagement. Table 2 highlights how specific AI applications can support gender-responsive practices in language classrooms.

Table 2. AI Applications Supporting Gender-Responsive Learning

AI Application	Gender-Responsive Function	Example Activities	Benefits	Reference
AI Chatbots	Low-pressure practice	Private speaking sessions	Increases participation, reduces anxiety	Ding & Yusof, 2025
Generative AI	Inclusive content creation	Counter-stereotypical writing prompts	Encourages diverse representation	Veldhuis et al., 2025
Automated Auditing	Bias detection	Review of pronouns, occupations, dialogues	Identifies and corrects stereotypes	Oyetade & Zuva, 2025
Critical AI Literacy	Evaluation of AI outputs	Reflection and revision exercises	Develops critical thinking and awareness	Sperling et al., 2024
Personalized Learning	Equitable access	Adaptive assignments based on learner needs	Reduces gender participation gaps	Cheng et al., 2025

5. Gender Bias and Risks in AI-Powered Language Tools

5.1 Bias in Large Language Models

The large language models can generate stereotypical associations because they have been trained with huge amounts of text that are indicative of the prevailing social inequalities. In early studies of word embeddings, it could be demonstrated that computers and electronics were linked to men, while childcare and cooking were linked to women (Bolukbasi et al., 2016). These trends are also seen in language generation, where AI-generated language can depict women in stereotypical jobs or roles within society (Sheng et al., 2019). The evaluation data sets used to assess biases also reveal that the pretrained language models tend to perpetuate social stereotypes in gender, race, religion and other identity categories (Nangia et al., 2020). A second finding, shared by the StereoSet, is that language models can opt for stereotypical associations even in the face of fluent and coherent output (Nadeem et al., 2021). In longer texts such as descriptions, biographies, and examples for education, open-ended generation studies found that biases can also emerge in longer AI-generated outputs (Dhamala et al., 2021). The unequal gender representation and stereotypical characterization by GPT-generated text can also be problematic for LLM in terms of language learning (Lucy & Bamman, 2021). More recently, research into the use of AI to generate news has demonstrated that large language models can capture bias in publicly available documents (Fang et al. 2024). This bias can result in epistemic injustice because language technologies favour the dominant identities and marginalize the others (Helm et al., 2024).

5.2 Gender Bias in Machine Translation

By default, machine translation systems tend to perpetuate gender stereotypes. For instance, gender neutral source sentences can be rendered in target languages in terms of gender of the person involved in leadership or technical tasks, but feminine for caregiving or domestic tasks (Stanovsky et al., 2019). In a study on Google Translate, occupational terminology was often translated in terms of assumptions on gender (Prates et al., 2020). Bias reduction techniques can enhance translation yields, but gender bias cannot be completely removed from translation as it is built into data, language constructions and assumptions regarding context (Saunders & Byrne, 2020). Previous gender-related research on MT indicates that the problem is indeed multilingual and can impact high-resource and low-resource translation environments (Savoldi et al., 2021). Recent studies indicate that ChatGPT can also perpetuate gender bias in translation, and it might not be consistent when dealing with non-gendered pronouns across different languages (Ghosh & Caliskan, 2023). While there are some directions that can be gleaned from gender neutral translation approaches, there remain issues with grammar, cultural translation, and user expectation. (Piergentili et al., 2023)

5.3 Biased Chatbot Interaction

Language learning AI chatbots could produce stereotypical examples, an imbalance in gender representation, or even a culturally biased response. In coreference resolution, AI systems tend towards stereotyping gender relationships, pairing the pronouns “he” with occupations like “doctor” or “leader” and “she” with roles like “nurse” or “caregiver” (Rudinger et al., 2018). Studies and evaluation of these patterns have shown that they can also emerge in natural language processing systems if they are not addressed during the design and testing of models (Zhao et al., 2018). In language classrooms, these skewed interactions with the chatbot can influence the learners' experience of gendered discourse, and also reinforce the unequal representation of genders.

5.4 Unequal Digital Access

While AI tools can help with language learning, they can also exacerbate educational gaps if access to devices, internet connection, digital literacy, and AI tools to assist with language learning is not equal. There are potential obstacles for girls, women, and economically disadvantaged or marginalized students in regular use of AI tools. This means that AI has the potential to create advantages for those who are already thriving in education, and disadvantages for others. Access can thus not be considered a technical issue but part of equity in language learning in a gender sensitive way.

5.5 Over-Reliance on AI

Another danger is excessive reliance on AI outputs. Learners and teachers might think that AI generated explanations, examples, translations or feedback are neutral just because they look fluent and authoritative. But AI can repeat biased

language, inadequate explanations and stereotyped examples. If not mediated by the teacher, the outputs from these processes can be taken at face value and internalized as biased representations. In light of these, language educators must understand the critical aspects of AI, guide students with intentional teaching, and continually assess AI outputs.

6. Gender-Responsive AI Language Education Framework

The key principles for the development of a gender-responsive AI language education framework are inclusive access, bias awareness, inclusive pedagogy, learner empowerment, critical AI literacy, and teacher mediation. Inclusive access is foundational because AI can promote equality only when learners from diverse gender, social, economic, and linguistic backgrounds can access and use it meaningfully. AI for language learning should thus be low cost, readily available, multilingual, mobile, and applicable in low-resource settings. If AI tools require costly equipment, fast internet connections, or sophisticated digital abilities, then they could contribute to exacerbating disparities in education. Big data and AI in education have been investigated and found that these technologies have the potential to help create flexible and personalized learning, provided that the infrastructure, access, and implementation challenges can be solved. (Luan et al., 2020)

Bias-aware content is also crucial as AI-generated language can perpetuate gender bias through pronouns, professions, illustrations, conversations, and responses. Teachers and curriculum developers should review AI-generated content for equity regarding the presence of females, men, and gender diverse people in a variety of career, home, scientific, leadership, and caregiving roles. Bias-aware AI usage also demands consideration of the way AI systems make recommendations, correct, and create learning content. Research on AI for education that values fairness emphasizes the need to address issues of bias, ethics, transparency, and accountability in the design and implementation of AI technologies in educational settings (Yin et al., 2024).

Inclusive pedagogy goes beyond automation of the classroom to empower equal participation and diverse identities through AI. AI can produce anti-stereotyped classroom activities, multilingual prompts, reading passages that are balanced, and inclusive dialogues, which teachers can use. The relevance of explainable AI in this process is that it is essential for educators and learners to comprehend how the AI systems generate feedback, categorize responses, or propose learning strategies (Khosravi et al., 2022). AI is thus a pedagogical aid, not a neutral authority.

Empowering learners is another key element of the framework. AI can be used to allow learners to practise on their own, repeat tasks, get feedback, edit outputs, track progress and gain confidence. This is particularly helpful for learners who are anxious, uncomfortable in class, or uncomfortable with the power dynamics and/or gender roles. Empowerment must be critical, though. The ethical concerns for AI in education highlight the importance of using AI to enhance human agency instead of turning learners into passive recipients of automated systems (Porayska-Pomsta et al., 2023).

Thus, the critical literacy of AI must be incorporated into the field of language education. Students need to evaluate, question and modify AI-generated output, particularly when there are biased assumptions, unequal representation or exclusionary language in the output. The role of teacher mediation is at the core: teachers lead tool selection, interpret AI feedback, assess generated material, avoid relying too heavily on AI, and link up AI-backed practice with inclusive learning targets. AI is a driver for gender equality only in this context, where access, content, pedagogy, learner agency, critical literacy and teacher judgement come together. Table 3 provides an overview of the main risks to consider in the context of language teaching and learning with AI and mitigation strategies. To support gender-equitable language learning, the use of AI tools, teacher mediation, critical AI literacy, inclusive pedagogy and the continuous risk monitoring can be integrated into a gender responsive AI language education framework as shown in Figure 1.

Table 3: Key Risks and Biases in AI-Powered Language Tools

AI System	Potential Bias or Risk	Observed Impact on Learning	Mitigation Strategy	Reference
Large Language Models	Stereotypical associations (men leadership, women domestic)	Reinforces gender norms in content	Debiasing algorithms, dataset auditing	Bolukbasi et al., 2016; Sheng et al., 2019
Machine Translation	Gendered default translations	Biased occupational or pronoun representation	Gender-neutral translation, post-editing	Stanovsky et al., 2019; Prates et al., 2020
Chatbots	Biased examples, culturally skewed dialogue	Unequal exposure and reinforcement of stereotypes	Teacher mediation, inclusive prompt design	Rudinger et al., 2018; Zhao et al., 2018
Access Gaps	Device, connectivity, and digital literacy inequalities	Girls, women, and marginalized learners disadvantaged	Policy support, affordable devices, inclusive infrastructure	Luan et al., 2020
Over-reliance on AI	Uncritical acceptance of outputs	Biases internalized by learners	Critical AI literacy, teacher-guided reflection	Porayska-Pomsta et al., 2023

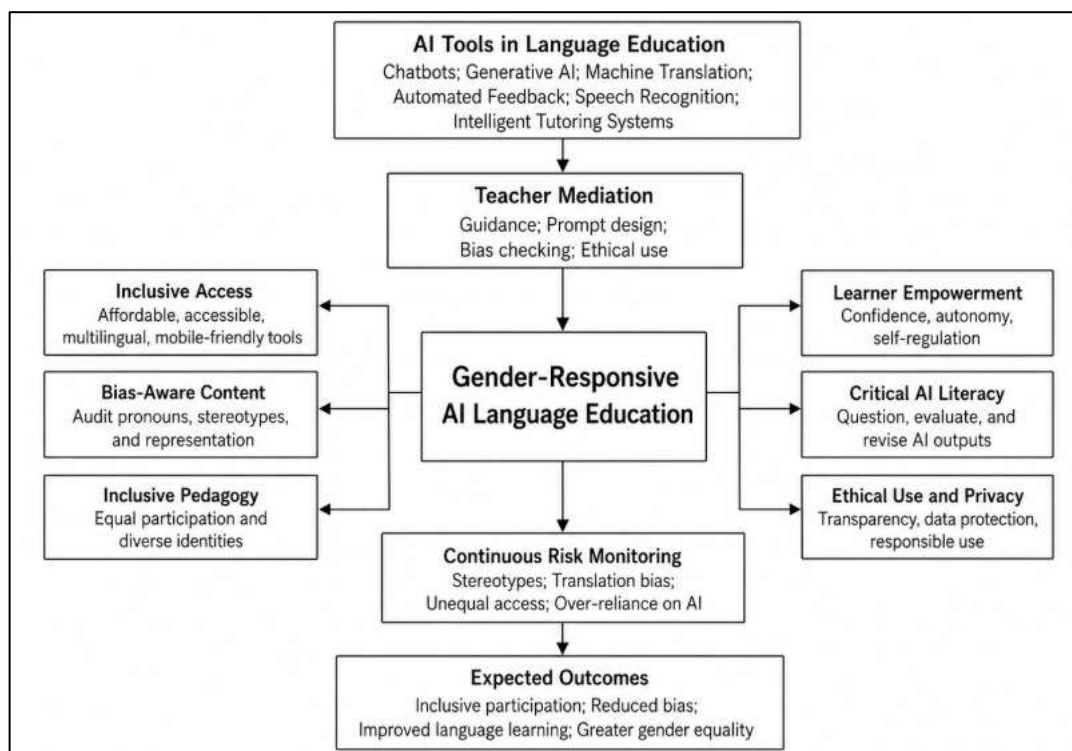


Figure 1. Gender-Responsive AI Language Education Framework

7. Practical Strategies for Teachers

It is crucial for teachers to be central to the process of supporting gender-equitable language education with the support of AI. A practical approach is to conduct text auditing on the learning materials using AI tools, which involves teachers reviewing materials for gender neutrality in pronouns, professions, examples, dialogues and prompts in the classroom. Another way to use generative AI is to write inclusive prompts for creating counter-stereotypical examples, such as the women in leadership roles, girls in STEM contexts, men in caregiving roles, and gender-diverse speakers. The adoption of these practices is in line with the findings of Ogunleye et al. (2024), which indicated that when teachers use generative AI tools with clarity in their pedagogical practices, it can enhance educational value.

Teachers can also create translation bias tasks where students analyze the output of the AI, detect gender bias, and correct biased output. Students can practice writing and storytelling and challenge stereotypes using counter-stereotype writing and storytelling activities. AI chatbots can also be employed to practice speaking at a lower level of intensity, particularly when students are reluctant to speak in front of others. Yet, these techniques cannot be fully automated, but need to be mediated by teachers. The integration of human judgement with AI capabilities is crucial to ensure responsible, accessible, and educational use of AI in learning.

All language-producing activities involving the use of AI should incorporate critical reflection. Students may be asked to identify stereotypes, note missing perspectives, explain and redesign in inclusive language and to critique AI-generated content. AI, in this way, is not only an instrument for language learning, but also a starting point to learn important AI skills and gender-consciousness.

8. Implications

There are several notable implications for language educators, language learners, language curriculum planners, AI designers, and policy makers with respect to the use of AI in language education. In particular, the need for teachers to be AI-literate and have the ability to develop pedagogy that is gender responsive is strongly emphasised. They must learn to create prompts that are inclusive, evaluate AI content for bias and engage in and reflect on AI outputs. AI can also support learners to improve their language skills, develop an understanding of stereotypes, and to critically interact with AI-generated content. The challenge is for curriculum designers to integrate and embed gender-balanced activities designed with the support of AI and incorporate activities that foster critical literacy. AI developers need to develop tools using representative datasets, conduct bias testing, create transparent AI outputs and design AI systems inclusively. Policymakers can also complement the role of researchers and practitioners by developing ethical AI procurement guidelines, advocating for equitable access to AI technologies, privacy protection, and teacher training programs that incorporate gender-informed AI adoption. They all suggest that the ability of AI to help create an equitable language education experience depends on thoughtful access and design, instruction, and governance. At the policy level, gender mainstreaming should guide the adoption of AI in language education. Gender equality should not be treated as a separate concern added after technology has been introduced; rather, it should be embedded in curriculum design, AI tool selection, teacher training, assessment practices, data governance, and institutional policy. Through gender mainstreaming, schools and educational institutions can evaluate AI tools not only for efficiency and learning outcomes, but also for their effects on representation, participation, access, language use, and learner empowerment.

9. Future Research Directions

Future studies should test the effectiveness of AI-enabled language learning for gender equality objectively. Further research is required in the classroom to explore the impact of inclusive activities with AI, including activities that audit for biases, counter-stereotype writing, and AI-supported speaking practice. Research into cross-linguistic and/or cross-cultural gender bias in MT outputs is essential, and especially relevant in low-resource and multilingual settings. The experiences of gender-diverse learners, the impact of teacher preparation for applying AI in gender-responsive ways and the creation of AI tools to identify and fix gendered educational content should also be studied. In addition, research should focus on digital access disparities between the genders, as well as between marginalized learners and mainstream learners, to guarantee that the benefits of AI are available for all, leading to inclusive and accessible language learning spaces.

10. CONCLUSION

AI can help drive gender equality in language learning by making learning more accessible, personalized, autonomous, and inclusive to language practice opportunities. Learners can interact with language in flexible, self-paced, and interactive ways with the help of chatbots, generative AI, machine translation, automated feedback, and intelligent tutoring systems. They can be particularly beneficial for students who might be apprehensive about attending a physical classroom, as AI can provide them with personalized learning environments, repeated feedback, and a sense of security. AI is not inclusive or neutral by default. AI systems can perpetuate stereotypes about gender roles, language, unequal representation and exclusion of people, and biased employment opportunities due to their reliance on existing data. In language education, these threats are large, as language reflects norms and identity and learners' views on gender roles. Therefore, AI-supported language learning requires critical awareness, teacher mediation, and gender-sensitive pedagogy. This review underscores the potential of AI as a tool for supporting gender equality when used purposefully to audit content, create inclusive examples, uncover translation bias, support diverse learners, and prompt critical thinking of AI-generated content. The proposed gender-responsive AI language education framework integrates inclusive access, bias-aware content, inclusive pedagogy, learner empowerment, critical AI literacy, teacher mediation, ethical use, and continuous risk monitoring. It is a shared responsibility of teachers, curriculum designers, AI developers and policy makers to ensure that the use of AI tools fosters fairness, not inequality. Therefore, AI should not be considered solely as a technological solution, but also as a pedagogical and social tool. Its value for language education depends on responsible design, careful implementation, continuous evaluation, and alignment with inclusive education goals. When integrated responsibly, AI can support language classrooms that are more inclusive, participatory, and critically aware.

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