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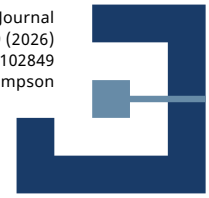

Castledown

AI in English language teaching at higher education institutions in Georgia: Usage, training gaps, and institutional support

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The integration of Artificial Intelligence (AI) in English language teaching within Georgian higher education institutions presents both new opportunities and challenges. A survey was conducted among 104 university educators throughout Georgia. The findings revealed that while AI adoption is growing, significant gaps in training and support hinder effective implementation. This study examines the correlation between AI training and the effective adoption of AI tools by university educators, assessing its impact on teaching practices, student engagement, and institutional support structures. The findings indicate that instructors who have received AI training demonstrate greater proficiency, utilizing AI for tasks such as grading, syllabus design, and adaptive learning. Additionally, trained educators are more likely to guide students in AI applications. Challenges include limited funding, technical difficulties, and confidence gaps in AI usage. The study underscores the urgent need for structured AI training programs, ongoing professional development, and institutional policies that facilitate AI adoption. Both trained and untrained instructors highlight the lack of institutional training and support as significant barriers to AI integration in teaching practices, limiting their ability to effectively implement AI in the classroom and guide students in its use. By identifying training gaps and institutional support mechanisms, this research provides insights into optimizing AI-driven teaching approaches in higher education.

Keywords: artificial intelligence (AI), higher education institutions, English language teaching (ELT), AI training, Institutional support, training gap

Introduction

The integration of Artificial Intelligence (AI) into English Language Teaching (ELT) in higher education has garnered significant academic interest due to its potential to enhance pedagogical practices. AI-driven tools provide opportunities for personalized learning, automated assessment, and interactive engagement, making education more efficient and adaptable to students' needs. Among various disciplines, AI is particularly prevalent in English language learning (Crompton & Burke, 2023) and appears to have a greater impact on language instruction than other fields. This underscores the growing need for enhanced teacher education and training in AI integration (Crompton et al., 2024). However, challenges persist in ensuring the effective implementation of AI in ELT. In recent years, this field has gained increasing attention, with numerous studies emphasizing the potential and necessity of AI to enhance teaching methods, support personalized learning, and assist educators with administrative and organizational tasks (Hinojo-Lucena et al., 2019).

Given the increasing reliance on AI in education, understanding its application in Higher Education Institutions (HEIs) in Georgia requires a thorough examination of existing literature, particularly studies addressing training gaps, adoption challenges, and institutional support mechanisms. This literature review explores research on AI adoption in ELT, focusing on training deficiencies, institutional support, and the impact of AI on teaching practices.

Literature review

International and local perspectives and challenges: AI in English language teaching

In the field of Computer-Assisted Language Learning (CALL), recent studies have emphasized AI's life-changing potential in language education. AI driven platforms like ChatGPT, Grammarly, and intelligent tutoring systems have shown effectiveness at enhancing student engagement, delivering immediate feedback, and improving language-learning outcomes. Recent research conducted by Octavio et al. (2024) emphasizes that English as a Foreign Language (EFL) teachers effectively used ChatGPT to write lesson plans and generate writing assessments, highlighting its capacity to act as a supportive "co-teacher," especially when combined with critical literacy and skilled prompt design. In a similar way, Pesce and Blanco (2024) discovered that students who study pedagogy also benefited from using ChatGPT in many cases, such as when assessment planning and in creativity tasks, promoting autonomy and critical thinking. According to Rahiman and Kodikal (2023), AI tools like Duolingo's GPT-based support assisted in real-time correction, easing learner anxiety and providing personalized guidance. However, as Chen et al. (2020) states, the

successful enforcement of AI in ELT depends on educators' digital literacy, institutional guidelines, and access to applicable training programs.

Teachers' proficiency in the use of digital tools and AI technologies is vital for effective enforcement. Another study examines factors influencing teachers' implementation of AI technologies, spotlighting individual features like digital literacy, which have a substantial influence on their willingness to incorporate AI into their teaching methods (Zawacki-Richter et al., 2019).

In order to foster an environment conducive to AI adoption in ELT, supportive and clear institutional policies are vital. Research indicates that institutional variables, including administrative support and infrastructure, play an important role on teachers' decisions to integrate AI-based applications into their higher education practices (Abdullah & Mirza, 2020).

It is vitally important to provide educators with appropriate training courses to grow both their competence and confidence in using AI tools effectively. The lack of sufficient training has been recognized as an obstacle to the effective integration of AI in language teaching, highlighting the need for comprehensive professional development opportunities (Pink et al., 2018).

According to Pei et al. (2025) many teachers lack ethical and technical fluency, which limits their ability to utilize AI meaningfully in classrooms. This reflects a broader trend where institutional frameworks lag behind rapid technological advancements (S. Wang et al., 2024). Galindo-Domínguez et al. (2024) also found that even digitally competent teachers often lack hands-on experience with AI, yet consistently express a willingness to learn, further emphasizing the need for targeted training.

Although global research on AI adoption in ELT is extensive, studies specifically examining the South Caucasus, particularly Georgia, remain scarce. Previous research on technology-enhanced learning in Georgia has emphasized the need for faculty training in a variety of programs, and institutional investment in digital education (Lobzhanidze, 2025). This aligns with broader findings indicating that the lack of professional development opportunities for educators presents a significant barrier to AI integration in teaching.

The lack of professional development is a major obstacle to integrating AI into teaching practices. However, regional disparities exist. In developing regions, such as Georgia, the integration of AI into higher education remains inconsistent due to infrastructural limitations, low levels of digital literacy, and insufficient training. Fundi et al. (2024) reported similar findings across numerous countries, noting that teacher readiness is often hindered by insufficient AI infrastructure and institutional support.

Despite the advantages of AI in ELT, several challenges hinder its widespread adoption. One of the most important challenges is a lack of training. A study by Moorhouse et al. (2023) found that 60% of educators in developing regions are not prepared to integrate AI due to inadequate training. Cost and accessibility also pose significant barriers, as AI tools often require financial investment, which can be a limiting factor for institutions with budget constraints (Chen et al., 2020). Further, Celik et al. (2022) highlighted that many AI tools are technically robust but pedagogically misaligned due to limited teacher

involvement in their development. Additionally, teachers often question the reliability of AI-generated content, especially when used for assessment and feedback purposes.

The impact of AI training in teacher readiness

According to C. Wang et al. (2024), researchers have consistently demonstrated that AI training plays a crucial role in enhancing teachers' ability to incorporate AI into their instructional practices. They summarized that professional training programs increase educators' confidence to put AI-driven applications to use, improve their capability to tailor the learning experience, and boost overall teaching productivity. However, the success of such programs depends on their structure, length, and the degree to which they provide practical experience. Lucas et al. (2025) argue that initial teacher education (ITE) programs in Europe still offer insufficient pedagogical preparation for AI, with negligible effects on teacher confidence. Ito (2024) found that many educators turn to informal, self-directed learning methods due to limited access to structured training courses.

A key barrier to AI adoption in the Georgian context is the lack of structured institutional policies that support AI training and implementation (Lobzhanidze, 2025). A recent study in Eastern Europe found that, without adequate institutional support, educators face challenges in integrating AI tools into their teaching, despite acknowledging their prospective benefits (Aoun, 2021). Even teacher educators themselves express uncertainty about incorporating AI into pre-service training, suggesting an urgent need for systemic reforms (Moorhouse & Kohnke, 2024).

The literature review shows that AI has the potential to enhance ELT, as long as teachers receive sufficient training and institutional support. Prior studies suggested that structured training programs improve teachers' AI proficiency, but a lack of institutional investment remains a key barrier. Research on the integration of AI in Georgia is still in its early stages. This study is especially relevant for shaping future training initiatives and policy development. Bridging training gaps and overcoming institutional challenges are crucial for optimizing the benefits of AI in higher education. The ongoing development of ethical policies, teacher-led system design, and collaborative professional development are strongly recommended (Bond et al., 2024).

The benefits of using AI in English language teaching (ELT)

The integration of AI into ELT offers clear benefits for both teachers and students. For educators, AI can reduce the workload by streamlining lesson planning, generating materials, and automating assessments. For learners, AI tools such as ChatGPT enhance engagement, support personalized learning, and improve key language skills, including vocabulary, grammar, and writing. These advantages underscore the importance of equipping teachers with

proper training and institutional support to fully harness the potential of AI in the classroom.

A recent case study by Octavio et al. (2024) demonstrates how an experienced EFL teacher effectively used ChatGPT to support lesson planning, in-class activities, and student assessment. The teacher implemented a five-step prompt strategy that enabled her to design engaging, level-appropriate tasks. Vocabulary activities were the most frequently created, followed by grammar, writing, and speaking tasks. ChatGPT significantly reduced her planning time, provided instant feedback, and supported real-time Q&A (Questions and Answers) during lessons. Students became more autonomous, generating their own prompts and engaging more actively in the learning process. Overall, the teacher observed increased student motivation and participation, showing how AI can simultaneously lighten teacher workload and enrich the learning experience.

Zhu et al. (2023) outline several approaches for integrating ChatGPT into education, based on a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis and the Conditions, Operations, Structure, and Technology (COST) model for human learning. The authors highlight ChatGPT's dual role in supporting both students and teachers. For students, it functions as a virtual tutor, offering instant answers and personalized support for self-regulated learning. It also provides expert guidance on complex tasks, and serves as a reflective tool for self-assessment, promoting critical thinking. For teachers, ChatGPT facilitates the creation of customized learning materials, saving time and enabling better alignment with students' needs. Additionally, it can be used to generate quizzes and lesson plans, improving overall instructional efficiency and allowing educators to dedicate more time to student interaction.

Crompton and Burke (2023) also spotlight the advantages of AI in higher education. For students, AI offers personalized instruction tailored to diverse learning needs, delivers timely and targeted feedback, and helps predict academic performance. For educators, AI supports the development of assessments and the delivery of individualized learning experiences. Their study, based on a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) systematic review of 138 articles, used both priori and grounded coding approaches to extract and analyze data. The findings confirm the significant potential of AI in Education (AIEd) to enhance teaching and learning at the tertiary level.

Similarly, Zhang and Aslan (2021) highlight the transformative impact of AIEd across different educational roles and contexts. For learners, AIEd enables diverse types of interaction, promotes greater engagement, provides adaptive learning materials, and supports the use of meta-cognitive prompts. These tools create enriched learning environments and help improve outcomes. Educators and administrators benefit from predictive modeling to identify gifted or at-risk students, monitor learning progress, and design personalized instructional materials, assessments, and feedback. Furthermore, AI-powered platforms enhance Learning Management Systems (LMS) by incorporating expert

systems, generating visual feedback, and utilizing immersive technologies to enrich the learning experience.

Taken together, these studies illustrate that AI, particularly tools like ChatGPT, can transform ELT and higher education by making teaching more efficient and learning more personalized, interactive, and student-centered. However, unlocking AI's full potential requires more than just access to technology. Without proper training and institutional backing, educators may struggle to use these tools effectively. Therefore, providing teachers with structured support and professional development opportunities is essential for the responsible and impactful integration of AI into Georgia's educational practice.

Despite these insights, several gaps remain in the Georgian context, particularly concerning teacher training, institutional support, and effective adoption of AI tools. To address these gaps, the present study formulates the following research questions:

- What is the impact of AI training on English language instructors' use of AI tools in their teaching practices?
- What are the main challenges in implementing AI tools?
- What are the essential needs of instructors?
- What are the existing training gaps that should be addressed in the development of AI training programs in higher education?

Methodology

The aim of the study

This study aims to examine the utilization of AI tools by English language instructors in higher education institutions in Georgia, to assess teachers' needs and the challenges they face in implementing these tools, and to identify training gaps for developing effective AI training programs. Additionally, it seeks to determine the correlation between AI training and the effective use of AI in teaching, highlighting how training influences instructors' expertise, teaching applications, and the integration of AI into pedagogical practices.

Participants

A survey was conducted with 104 university educators from diverse regions of Georgia. The majority of respondents (41.9%) were aged between 36 and 46 years old, followed by those aged 47 to 57 (28.6%). The majority of participants possessed a Master's degree or higher. The participants were selected to provide a wide representation of both private and state university instructors. Nearly 48% of respondents work at private universities, 36% are employed at public institutions, while the remaining work at both types of institutions.

A significant majority of respondents (92.2%) were female, while just 7.6% were male. This gender disparity illustrates the demographic distribution of male and female educators in the field of ELT in Georgia, where female educators are predominant.

The majority of respondents (83%) reside in Tbilisi, the capital, aligning with the observation that nearly two-thirds of accredited universities in Georgia are situated in Tbilisi (GEOSTAT, 2024).

The respondents' years of teaching experience at the university level showed considerable variability. The mean teaching experience was 15.02 years, with a standard deviation of 9.46 years, signifying a considerable range in experience levels. Some respondents possessed as little as one year of experience, while others had taught for as long as 45 years. The considerable variation in experience indicates that the sample includes both novice and highly experienced educators, offering a diversified viewpoint on instructional methodologies.

To provide a clearer overview of the sample characteristics, a detailed demographic profile of participants is presented below.

Table 1. Demographic profile of participants

Variable	Category	Frequency (n)	Percentage (%)
Gender	Female	96	92.2 %
	Male	8	7.6 %
Age	25–35	15	14.4 %
	36–46	44	41.9 %
	47–57	30	28.6 %
	58 +	15	14.4 %
Educational background	Bachelor's degree	11	10.6 %
	Master's degree	53	51.0 %
	PhD	40	38.4 %
Type of institution	Private university	50	48.0 %
	Public university	37	36.0 %
	Both	17	16.0 %
Place of residence	Tbilisi	86	83.0 %
	Other regions	18	17.0 %
Teaching experience (years)	1–5	14	13.5 %
	6–15	32	30.8 %
	16–25	36	34.6 %
	26–45	22	21.1 %

Design and procedure

This study employs a quantitative research approach to examine the correlation between AI training and its effective use in English language teaching in Georgia. Data was collected through a comprehensive online survey designed to capture participants' AI usage, training experiences, and institutional support. The survey included multiple-choice and Likert-type questions, with descriptive response options to assess expertise levels, teaching applications, and challenges related to AI integration.

Building on the original TPACK questionnaire by Graham et al. (2009), which

measures teachers' knowledge in integrating technology into instruction, we adapted the instrument to the context of AI in ELT. The revised questionnaire retains the four core constructs: Technological Knowledge (TK), Technological Pedagogical Knowledge (TPK), Technological Content Knowledge (TCK), and Technological Pedagogical Content Knowledge (TPACK). Our questionnaire reframes each around AI applications rather than general technologies. Items were modified to capture teachers' understanding of, and confidence in, using AI tools and adaptive learning platforms to enhance language learning. The instrument also includes new items addressing ethical awareness, critical understanding of AI's affordances and limitations, and teachers' need for training and institutional support to effectively integrate AI into their practice. This adaptation preserves the conceptual integrity of the TPACK model while extending it to the evolving domain of AI-enhanced pedagogy.

After adapting the original TPACK questionnaire to the AI integration context, we conducted a pilot study with a small group of teachers to examine the clarity, reliability, and relevance of the new items. Feedback from this mini-survey guided several revisions, including refining item wording, adjusting scale descriptors, and adding context-specific examples of AI use in language teaching. Based on these results, we developed the final version of the AI integration questionnaire, ensuring it accurately reflected teachers' experiences, needs, and perceptions regarding AI-supported pedagogy.

The survey was conducted between December 2024 and January 2025, and was shared online to maximize accessibility and participation among university instructors. The survey was distributed directly to university instructors via their institutional email addresses to ensure that participants were qualified educators, enhancing the accuracy of the responses. To analyze the collected data, chi-square tests were performed using SPSS to determine statistically significant relationships between AI training and instructors' expertise, confidence, and ability to integrate AI into their teaching practices. By employing this structured approach, the study was able to identify key training gaps, institutional support needs, and the overall demand for AI training in higher education.

Ethical considerations. Ethical considerations were maintained by ensuring voluntary participation and guaranteeing anonymity. Participation was voluntary, and participants had the right to withdraw from the study at any time, without any consequences.

Descriptive analysis

The data was analyzed using IBM SPSS Statistics software (version 30.0.0), employing a chi-square test of independence to assess significant relationships among the examined variables. The results offer valuable insights into the impact of AI training on proficiency levels, tool usage, and overall implementation in higher education institutions.

Results

Correlation between training on perceived proficiency

Descriptive statistics reveal that a significant majority (80%) of participants believe that academic staff and invited staff members should receive AI training at universities. A chi-square test demonstrated a statistically significant association between training received and self-reported proficiency levels, $\chi^2(4) = 14.11$, $p = .007$. This finding underscores the critical role of training in enhancing perceived proficiency in AI applications.

A detailed breakdown of proficiency levels further supports this conclusion. Among trained individuals, one participant identified as an expert, whereas no untrained participants did. 11 trained participants rated themselves as competent or expert, compared to only eight in the untrained group. Conversely, a significantly higher number of untrained participants ($n = 24$) categorized themselves as beginners, compared to only six in the trained group. This distribution strongly suggests that AI training facilitates progression to higher competence levels. Fisher's Exact test ($p = .002$, Monte Carlo significance) corroborated these findings, further validating the relationship between AI training and self-reported proficiency, while the Pearson chi-square test ($p = .007$) reinforced the conclusion that training significantly enhances proficiency perceptions.

AI training and tool utilization

The study also revealed a significant relationship between training and AI tool adoption. Participants who had undergone AI training exhibited higher usage rates of AI tools compared to those who had not received training. Commonly used AI tools among both groups included ChatGPT, Claude, and Gemini, as well as gamification platforms like Quizizz and Quizlet. However, a notable difference emerged in the use of more specialized AI tools: trained individuals were significantly more likely to use copilot tools ($p = .005$) and Twee ($p = .039$) than their untrained counterparts.

Further statistical analysis emphasized the influence of training on specific AI applications in education. A chi-square test ($p < .001$) revealed that trained teachers were significantly more likely to use AI for grading compared to those without training. The results are shown in Table 1. Additionally, there was a statistically significant relationship between AI training and syllabus generation ($p = .039$), indicating that AI-trained teachers were more inclined to integrate AI into diverse academic tasks. These findings underscore the importance of AI training programs in promoting the adoption and effective utilization of AI tools in educational settings.

Table 2. The influence of training on use of AI tools

Chi-square tests[c]						
Test	**Value**	**df**	**Asymp. sig. (2-sided)**	**Exact sig. (2-sided)**	**Exact sig. (1-sided)**	**Point probability**
Pearson chi-square	13.129[a]	1	<0.001	<0.001	<0.001	
Continuity correction[b]	11.276	1	<0.001			
Likelihood ratio	14.441	1	<0.001	<0.001	<0.001	
Fisher's exact test				<0.001	<0.001	
Linear-by-linear association	13.002[d]	1	<0.001	<0.001	<0.001	0.000
N of valid cases	104					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.17.
b. Computed only for a 2×2 table.
c. For 2×2 crosstabulation, exact results are provided instead of Monte Carlo results.
d. The standardized statistic is −3.606.

Challenges in AI implementation: A lack of training and support

Despite the clear advantages of AI training, the study also identified significant challenges related to insufficient training and institutional support. A substantial proportion (65%) of untrained individuals reported experiencing a lack of training and support. Notably, even among those who had received training, 42% still perceived a lack of institutional support, suggesting that training alone may not be enough. In total, 56 out of 104 participants (54%) expressed concerns regarding inadequate training and support structures.

Further statistical analysis reinforced these concerns. The Pearson chi-square test ($\chi^2 = 5.44$, $p = .020$) confirmed a significant relationship between AI training and perceived institutional support, as can be seen in Table 2. The likelihood ratio test (5.48, $p = .019$) and Fisher's Exact test ($p = .030$) further validated this relationship, illustrating that while training mitigates some concerns, institutional support remains a crucial factor in AI adoption.

Table 3. Relationship between AI training and perceived institutional support

Chi-square tests[c]						
Test	**Value**	**df**	**Asymp. Sig. (2-sided)**	**Exact sig. (2-sided)**	**Exact sig. (1-sided)**	**Point probability**
Pearson chi-square	5.438[a]	1	0.020	0.030	0.016	
Continuity correction[b]	4.558	1	0.033			
Likelihood ratio	5.482	1	0.019	0.030	0.016	
Fisher's Exact Test				0.030	0.016	
Linear-by-linear association	5.385[d]	1	0.020	0.030	0.016	0.011
N of valid cases	104					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 23.08.
b. Computed only for a 2×2 table.
c. For 2×2 crosstabulation, exact results are provided instead of Monte Carlo results.
d. The standardized statistic is 2.321.

AI training and student guidance

Another critical finding of the study was the relationship between AI training and the ability of educators to guide students in the use of AI tools. A chi-square test ($\chi^2 = 4.43$, $p = .035$) revealed a statistically significant association between receiving AI training and assisting students with AI tool usage. The likelihood ratio test (4.51, $p = .034$) corroborated these results, indicating that trained educators were significantly more likely to provide guidance in AI usage.

The Fisher's Exact test results reinforced this conclusion, with a two-sided p-value of .053 and a one-sided p-value of .029. These findings emphasize that training equips educators with the necessary skills to support students in AI integration, further strengthening the case for comprehensive AI training programs in higher education.

Discussion and conclusion

The findings highlight the critical role of AI training in equipping English Language teachers with the confidence and competence to integrate AI tools into their teaching practices in higher education institutions. The data demonstrates a clear correlation between receiving training and higher self-rated proficiency in using AI tools for teaching, with trained teachers mostly evaluating themselves at intermediate level ($p < .05$), while a greater number of untrained participants categorized themselves as beginners, compared to the trained group. The significant correlation between training and higher self-rated proficiency suggests that structured AI training programs can bridge the gap between technological advancements and pedagogical implementation.

The findings indicate that training plays a significant role in the successful implementation of AI tools in education. Teachers who received AI training demonstrated higher usage of AI tools compared to those who did not,

particularly for specific applications such as grading ($p < .001$) and syllabus generation ($p = .039$). Additionally, trained teachers were significantly more likely to use advanced AI tools like copilot ($p = .005$) and Twee ($p = .039$), suggesting that training encourages not only AI adoption, but also exploration of more specialized tools.

These results underscore the critical role of training programs in equipping educators with the knowledge and confidence to integrate AI into their teaching practices. The greater adoption of AI-assisted grading and syllabus generation among trained teachers suggests that professional development in AI can directly enhance teaching efficiency and workload management. These findings are consistent with a recent study by Moorhouse and Kohnke (2024), conducted in Hong Kong, where English language educators from all four government-funded universities acknowledged the significant influence generative AI tools will have on initial language teacher education (ILTE). Despite recognizing this potential, the majority reported that they lacked the competence and confidence to integrate AI tools effectively into their professional practice. Importantly, all participants expressed a clear need for professional development, echoing the conclusion of the present study: training programs are essential for empowering educators to use AI confidently and effectively in their teaching.

As in our research, the Hong Kong study emphasizes that professional development is essential, as those few educators with more experience using AI were more likely to apply it meaningfully – whether in instruction, assessment, or research, highlighting that AI competency directly enhances teaching quality and efficiency.

Training does not just improve teachers' own AI proficiency, but also enables them to transfer this knowledge to students. Receiving AI training is strongly linked to teachers' ability to guide students in using AI tools effectively. Teachers who have received training are less likely to cite a lack of confidence in their AI knowledge as a reason for not providing such guidance.

Despite the clear benefits of training, the study identified several critical challenges and barriers to implementing AI tools. The biggest challenge is the lack of training and support from universities/institutions (53.85%). This aligns with existing literature that emphasizes the need for professional development and institutional support for successful AI adoption in education. Research by Mavropoulou et al. (2023) suggests that this responsibility primarily rests on educators, whose insights and preparedness are critical to maximizing the potential of AI tools. Supporting this view, Edmett et al. (2024) observe a divergence in educators' attitudes towards AI: some express apprehension about its impact on traditional teaching roles, while others are optimistic about its educational value. Nevertheless, a common concern remains, namely, the lack of sufficient training, which poses a major barrier to optimal AI integration in classrooms.

The cost of AI tools (30.77%) is the second most commonly reported issue. This result derives from a multiple-response question asking participants to select all challenges they had encountered when using AI in their teaching

(options included lack of training and support, high cost of AI tools, technical difficulties or lack of infrastructure, privacy and data security concerns, resistance from students or colleagues, and difficulty integrating AI with existing teaching methods). Percentages were calculated based on the total number of respondents (N = 104) who selected each option. This suggests that higher education institutions should provide funding opportunities to bridge this gap. Technical difficulties (13.46%) and integration difficulties (16.35%) are relatively minor concerns. This implies that, while infrastructure and compatibility issues exist, they may not be the primary deterrents to AI adoption. Instead, educators may already have access to some AI tools but struggle with knowledge and confidence in using them effectively.

Privacy and data security concerns (9.62%) are relatively low, suggesting that while data protection is an important topic, it is not currently perceived as a major barrier. This could be due to increasing user awareness and better security measures within AI tools themselves.

Resistance from students or colleagues (2.88%) is the least reported challenge. This implies that stakeholders are generally open to AI integration, which is a positive sign for future adoption.

Most notably, 42% of trained teachers still reported feeling unsupported, indicating that training alone does not guarantee successful AI implementation in education. This also highlights a gap between the theoretical knowledge gained during training and the practical application of AI in real classroom settings. Training programs should go beyond theoretical concepts and provide teachers with hands-on experience, practical guidance, and real-world application strategies to ensure effective AI integration in education.

The findings also underscore the importance of structured AI training programs in helping educators to effectively integrate technology into their teaching practices. However, these programs must be redesigned to include more experiential learning, case studies, and real-world applications. The fact that trained individuals feel unequipped to guide students suggests that current training programs need to be restructured to better balance theoretical knowledge with practical skills development.

The study also highlights the need for continuous support mechanisms. The significant relationship between training received and perceived lack of support ($p < .05$) reveals that there is a need for institutions to develop more comprehensive support systems alongside training programs. These systems should include ongoing mentorship, follow-up training, and practical implementation support to help teachers overcome implementation barriers and build their confidence in AI tool usage.

The results provide compelling evidence that AI training enhances teachers' ability to guide students, reinforcing the importance of professional development programs. However, the findings also indicate that training alone is not a solution: institutional support, resource availability, and teacher confidence play a crucial role in ensuring that AI adoption benefits both educators and students.

Regarding essential needs, the study reveals several crucial areas that must

be addressed in AI training program design: first, there is a clear need for more comprehensive support systems that extend beyond initial training. Second, the data shows the need for more hands-on, practical training components, as current theoretical-focused approaches may not adequately prepare teachers for real-world application. Third, there is an evident need for ongoing mentorship and support to bridge the gap between training and practical implementation.

Recommendations and implications

The findings offer several crucial recommendations for enhancing AI training and support systems in Georgian educational institutions. A key suggestion is that higher educational institutions in Georgia should prioritize AI training initiatives to enhance teachers' ability to effectively utilize AI tools, ultimately improving both teaching quality and student engagement. A recommendation to prioritize comprehensive AI training for educators is proposed and substantiated by a wide body of existing literature. The current scholarship strongly advocates for higher education institutions to implement robust AI training initiatives aimed at equipping educators with the necessary skills and confidence to effectively integrate AI tools into their teaching practices. This proactive approach is essential not only to enhance instructional quality, but also to foster greater student engagement. Moorhouse and Kohnke (2024) identify a widespread lack of confidence and competence among teacher educators in using generative AI, underscoring the urgent need for targeted professional development to close this gap. This aligns with Zhang and Aslan (2021), who emphasize the importance of bridging the divide between rapidly evolving AI technologies and their practical application in educational contexts, a process that requires close collaboration between AI developers and educators. Similarly, Rahimi and Tafazoli (2022) highlight the foundational role of teachers' digital competence in effectively leveraging technological advancements, including AI, for both instruction and classroom management, explicitly calling for teacher training programs to strengthen these competencies. Park (2022) reinforces this perspective by asserting that the successful integration of technology into language learning depends on the expertise of language teachers who can skillfully manage technology-enhanced learning environments, while Caena and Redecker (2019) broaden the discussion by arguing that educators must update their competence profiles to meet 21st-century demands, noting that professional development should include emerging technologies such as AI to adequately prepare both teachers and learners for the future of education.

Such training initiatives not only empower individual educators, but also strengthen the educational system's capacity to adapt, innovate, and thrive in an AI-driven future. To realize these benefits, concrete support measures at the institutional and policy levels are essential. Governments, organizations, and universities could offer grants or subsidies to support the funding of AI tools in universities, while the institutions themselves could develop structured AI implementation frameworks to support teachers in incorporating AI into their pedagogical practices.

Training programs should be redesigned to emphasize hands-on, practical components that balance theoretical knowledge with real-world applications through case studies and experiential learning opportunities. The significant relationship between training and perceived support (with 54% of participants reporting insufficient support) highlights the critical need to implement ongoing support mechanisms beyond initial training. Notably, even among trained individuals, 42% still reported feeling unsupported, indicating that current training programs may need to be more comprehensive and advanced. AI training initiatives should adopt diverse instructional formats, including workshops, peer-to-peer learning sessions, and hands-on practice. Such programs should not only focus on developing technical proficiency but also emphasize the pedagogical integration of AI into teaching practices. Educators should be introduced to a range of AI-driven educational tools beyond conversational agents, such as Curipod, Brisk Teaching, and Diffit, which support content creation and differentiation, as well as virtual teaching platforms like Gather.town, which enhance online engagement. Incorporating these varied approaches can foster a more comprehensive understanding of how AI can effectively transform teaching and learning environments.

The study revealed a significant relationship between teacher training and student guidance, suggesting that investing in teacher training creates multiplicative benefits throughout the educational ecosystem. Therefore, institutions should prioritize training programs that enhance teachers' ability to effectively guide students in AI tool usage.

These programs should incorporate both common AI tools and specialized applications to maximize the benefits of AI integration in academic settings, with particular attention given to tools that exhibit notable adoption differences between trained and untrained users. This comprehensive approach to training and support would help address the current gaps in AI integration, while fostering a more confident and capable teaching workforce.

Future research

Future research should focus on three key areas to enhance our understanding of AI training effectiveness in educational settings:

First, a comprehensive assessment of training methodologies is needed to evaluate the relative effectiveness of various training formats, including workshop-based learning, peer-to-peer instruction, online versus in-person training, and project-based learning approaches. Such research would help identify the most effective delivery methods for different learning contexts and teacher needs. This includes investigating the effectiveness of different AI training programs in improving student learning outcomes.

Second, researchers should conduct detailed barrier analyses to understand the specific obstacles that prevent trained teachers from applying their knowledge effectively. This includes examining the relationship between different types of training and confidence levels, as well as studying how various support systems impact teacher performance. It would also be important to explore

the role of administrative and policy support in facilitating AI integration at the classroom level, as such factors can significantly affect the implementation and effectiveness of AI tools.

Third, longitudinal studies are crucial to tracking the long-term effects of different training approaches, monitoring how teachers progress from beginner to advanced skill levels, and assessing the sustainability of learned skills over time. These studies would provide valuable insights into the lasting impact of AI training programs and help to identify factors that contribute to long-term success in AI integration within educational settings. This multi-faceted research agenda would significantly contribute to our understanding of effective AI training implementation in education, and guide the development of more effective professional development programs.

Given that trained teachers predominantly rated themselves at an intermediate level, further research could explore whether additional advanced training would lead to higher proficiency and more innovative applications of AI in language education. The results emphasize the need for ongoing professional development, as simply introducing AI tools without adequate training may limit their adoption and effectiveness. Future studies could examine how various training formats, such as workshops, online courses, or peer mentoring, impact teachers' long-term confidence and the implementation of AI in their teaching practices.

By addressing these areas, future research will not only improve AI integration in education, but will also ensure that teachers are adequately prepared to harness its full potential for both their own development and for the benefit of student outcomes.

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