Bangladeshi university EFL teachers' vision for the future role of artificial intelligence in teaching and teachers' new identity

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Article Info

ABSTRACT

Global education has seen the rapid integration of artificial intelligence (AI). However, its adoption in Bangladeshi universities has been limited, raising questions about the perceived value and future applications of AI among English language teachers. This study examines how English as a foreign language (EFL) teachers at Bangladeshi universities envision a future role for AI in language instruction and discusses how the integration of AI might redefine their professional identity. The data were collected through a survey of 123 EFL teachers from 20 universities, using simple random sampling, and in-depth interviews with five teachers selected through purposive sampling, following a mixed-method approach. Quantitative analysis, supported by descriptive statistics, multicollinearity tests, and multiple regression, revealed that perceived usefulness has a significant impact on teachers' attitudes toward AI, with a coefficient of 0.643 and a p-value of less than 0.001. In contrast, perceived challenges do not significantly influence attitudes, with a coefficient of 0.032 and a p-value of 0.665. Qualitative findings further illustrate the evolution of professional identity, where teachers acknowledged the potential of AI to change practice through task automation and personalization; however, concerns remain about changes in roles and gaps in skills. Piloting and expert review, together with rigorous statistical procedures, were used to ensure the reliability and validity of the research. The study concludes by stating that the effective integration of AI requires demonstrating its practical benefits and addressing the barriers, thereby providing valuable insights for policy and practice in Bangladeshi universities.

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1. INTRODUCTION

Artificial intelligence (AI) is revolutionizing education around the world, and nowhere more than in the area of English as a foreign language (EFL) teaching. AI, which mimics human thought, brings about tools that tailor learning, automate assessment, and introduce innovative teaching methods [1]. This initiative has been launched through campaigns such as "AI for ALL" in countries like the United States, the United Kingdom, and Finland, to prepare learners for life in a world dominated by technology [2]. AI-powered tools like Grammarly, ProWritingAid, and ChatGPT have revolutionized language instruction by providing immediate feedback, enhancing lesson design, and engaging learners in dynamic ways [3]. These are

indications of a paradigm shift in EFL education that calls for closer examination of the long-term implications AI carries for teaching roles and teacher identity.

Universities in Bangladesh are increasing in number, with English being considered one of the most significant skills for global engagement and employability [4]–[6]. Despite this growing emphasis, traditional EFL teaching often fails to meet the diverse needs of learners. AI offers promising solutions; by enabling tailored, interactive learning experiences, it can help. The current rate of AI adoption in Bangladeshi universities is low. Most existing research points to the potential of AI in improving language teaching and alleviating teacher burdens by automating routine tasks such as grading and lesson planning [7], [8].

However, there is a minimal number of studies on how AI is going to reshape teacher roles, professional identities [9], and training frameworks within EFL contexts. This is of great importance, as the successful integration of AI depends not only on its technical functionality but also on how well teachers adjust themselves to their evolving roles in the AI-integrated classroom. There is hence clear evidence that AI has the potential to change pedagogical practices. Indeed, AI is not a tool, but a lever of change in the role of the teacher, shifting from a content deliverer to a facilitator of higher-order thinking and creativity. Such a change in pedagogical practice calls for re-imagining teacher training and professional development [10].

AI is likely to change EFL teaching. Some tools, such as ChatGPT and Grammarly, provide immediate feedback, while others, like ProWritingAid, help teachers design interactive and personalized lessons [3]. Scholars have demonstrated that AI enables teachers to tailor learning to the individual needs of each student, thereby making language acquisition more efficient [10]. AI is more than just a tool for greater efficiency; it promotes deeper learning and critical thinking, enabling teachers to focus on higher-order skills. Similarly, another scholar holds the view that AI can handle routine tasks, such as grading and tracking students' progress, which frees up teachers to engage with students more meaningfully [10]. The role of AI extends beyond facilitating administrative tasks. It has also been found that AI can enhance the learning experience by fostering greater collaboration between teachers and students [11]. In such a collaborative model, AI is in the learning environment, not just an add-on. While bringing advanced functionalities, it must be ensured that AI is introduced in a way that does not conflict with pedagogical goals [12]. Teachers play a key role in mediating the use of AI, ensuring that it retains the human touch essential in education [13]. How AI reconfigures classroom dynamics remains an open question, one that holds considerable potential. The integration of AI in EFL classrooms, in both the long run and with eventual impact, rests on the teachers' visions of it [8]. Knowing these views can help align technological innovations with educational goals, ensuring that AI does not disrupt good teaching practices.

The adoption of AI is also transforming the professional identity of teachers. With AI taking over routine tasks, teachers are now moving from being dispensers of information to facilitators of learning [10]. This new role emphasizes guidance and the development of critical thinking skills. Another scholar supports the idea that this evolution enables teachers to focus on the more human aspects of education, such as developing creativity and fostering relationships with learners [14]. Another study notes that this shift opens up possibilities for not only clinicians [15]. While some educators may feel empowered by the opportunities that AI offers, others may struggle to adapt to the new expectations that it presents. Another investigation highlights the close relationship between professional identity and the way teachers perceive their role [8]. The support of teachers in understanding how AI complements their work may contribute to more confident embracing of the changed roles among them [11]. A study suggests that teachers who view AI as a support for their teaching tend to innovate and improve their practices. Programs addressing such identity shifts are critical [12]. Another recent study asserts that a collaborative mindset, in which teachers and AI work together, guarantees that educators remain at the core of the learning process [13]. This balance enables teachers to leverage AI capabilities while preserving the personal, human elements that are vital to teaching.

However, without research into how teachers envision such changes, especially in resource-constrained contexts like Bangladesh, there is a limitation to the potential for adequate support from policymakers and institutions. In such contexts, teachers often encounter systemic barriers, including inadequate technological resources, insufficient training, and unequal access to infrastructure [12]. Such challenges may heighten the feelings of uncertainty and marginalization that could affect the mainstreaming of AI [16]. Addressing this gap is essential for several reasons. First, teacher perceptions play a central role in the successful integration of AI. Teachers need to be not only technically competent but also confident in their ability to navigate the pedagogical shifts that AI requires [17]. If that confidence does not exist, even the most sophisticated AI tools may fail to have the desired effect. This may have broader implications for teacher identity as teachers move from routine classroom practices to a more mentorship-oriented, critical thinking, and creative problem-solving role with the rise of AI integration [15]. Understanding how teachers perceive and respond to these changes in their identities would enable the development of pre-service and in-service training that better caters to their evolving professional needs. This may have significance in representing a more nuanced perspective on the conceptions of Bangladeshi university EFL teachers

regarding the potential impact of AI on their educational contexts. It explores broader implications of AI in teacher education and professional identity, therefore providing essential insights needed for developing interventions that can address concerns in reality.

These results will contribute locally to the development of policy and practice, guiding the creation of training programs that will equip teachers with the skills and confidence needed to succeed in an AI-integrated classroom. This study contributes to the growing body of research on AI in education, with a particular focus on the challenges and opportunities that arise from its adoption in a developing context. This article is more than a mere technical application; it explores the impact of AI on pedagogical approaches and professional methodologies. Rather than investigating the short-term benefits associated with tasks such as grading and curriculum design, this research examines the lasting consequences these technologies have on instructional practices and the development of a sense of professional identity. As a study affirms, AI can enhance the quality of education by allowing teachers to focus on more strategic and interactive aspects of instruction [14]. However, realizing this potential requires an integrated approach that considers all dimensions—both technical and human—of teaching and learning. With the further development of AI tools, they will likely become even more central to language instruction.

Advanced applications, such as ChatGPT and Duolingo, are already reshaping how teachers plan lessons, engage students, and provide feedback [18]. This evolution highlights the pressing need to define the future of AI in EFL teaching, which would enhance technical proficiency and enable teachers to redefine their professional identities. Based on the reality, the study becomes essential in shedding light on how Bangladeshi EFL teachers perceive these changes. The following research questions guide the study:

i)   How do Bangladeshi university EFL teachers envision the future role of AI in language instruction?
ii) How might the integration of AI reshape EFL teachers' professional identity within Bangladeshi universities?

The conceptual framework is based on the technological pedagogical content knowledge (TPACK) model by Mishra and Koehler [19], which emphasizes the integration of technology, pedagogy, and content knowledge. It focuses on two key aspects: teachers' evolving identity and teachers' vision for the future role of AI in EFL instruction. The framework outlines how AI reconfigures the professional role of a teacher from merely transmitting knowledge to facilitating creativity and critical thinking [10]. Finally, teachers' visions of how AI may change the face of EFL teaching in the future offer a glimpse into its potential to enhance language instruction and inform institutional strategies [11]. The framework links these elements to provide deeper insights into the impact of AI on teaching and learning.

2.   METHOD
2.1. Research design
This study employed a mixed-methods design, incorporating both quantitative and qualitative approaches to answer the research questions. The mixed-methods approach offers both flexibility and depth, allowing for the numerical analysis and nuanced interpretation of participants' experiences [20]. The mixed-method framework is particularly relevant in the investigation of EFL teachers' perceptions about the integration of AI in universities in Bangladesh. This is a comprehensive view of the perceptions held by educators regarding the role AI can play in language teaching and learning, as well as its implications for their professional identity and training, adopting a dual methodological approach. This study employed a survey to collect quantitative data necessary for understanding broader trends, which were further enriched through semi-structured interviews, allowing for an exploration of deeper meanings and personal experiences. This dual approach consolidates the validity of the findings by triangulating data from two complementary sources following the guidelines [21], [22].

2.2. Participants
The target population of this study comprised EFL teachers from 20 universities across Bangladesh. The quantitative phase of the study involved conducting an online survey through Google Forms in July 2024. Using simple random sampling ensures that non-biased participants are chosen, where 123 participants in this study represent 20 universities [23]. It is, in a sense, representative of a cross-section of teachers with varied teaching experience, academic ranks, and exposure to AI tools. In the qualitative phase, a purposive sampling of five EFL teachers was selected for in-depth, semi-structured interviews. These participants were selected based on experience with AI in EFL teaching and a willingness to contribute in-depth insights. This filtering ensured that the interviewees were suitable experts with practical knowledge, providing a rich source of qualitative data. The participant group represented a cross-section of institutions, and the findings are meant to reflect diverse voices within the Bangladeshi higher education landscape. These participants had 3 to 20 years of teaching experience and were aged between 28 and 50 years. About 70% of them were from urban universities and 30% from rural universities, thus giving a good balance of institutional contexts.

2.3. Instruments

Data were collected through a survey questionnaire and semi-structured interviews. The survey consisted of 19 items, divided into four parts: one on demographic information, another on the usefulness of AI, a third on integration challenges in AI, and a fourth on visions for the future of AI in EFL teaching. A 5-point Likert scale questionnaire was adapted, reliable, and used in the past [13], [24]–[27]. The pilot study, conducted on a sample of 30 respondents, ensured the reliability and validity of the questionnaire. Cronbach's alpha was used to determine the internal consistency [28]. Cronbach's alpha coefficients for the primary constructs varied between 0.82 and 0.91, above the suggested cut-off value of 0.70, and therefore indicated strong internal consistency of the survey items. Qualitative data were collected using semi-structured interviews, which were underpinned by eight open-ended questions. Interview questions in the study were derived from preceding research to explore participants' experiences and views about AI integration in EFL teaching [11], [24]. Semi-structured interviews provided participants with the flexibility needed to respond to follow-ups by sharing personal insights. A Google Forms-based survey was shared to gather a broad range of teacher perceptions regarding the use of AI in EFL classrooms. A total of 123 valid responses were collected, which reassuringly allows for the analysis of a very rich dataset. Interviews were conducted via Zoom, recorded with the participants' consent, and transcribed for analysis. All procedures were carried out anonymously and kept confidential to safeguard participants' identities.

2.4. Data analysis

Quantitative data analysis was based on descriptive and inferential statistics. Means and standard deviations (SD) were used to describe the perceptions of teachers, providing an overview. Before running the regression with the dependent variable, which is EFL teachers' future vision for AI, the researcher must analyze the variance inflation factor (VIF) to assess the multicollinearity of the independent variables. This test ensured that the independent variables relating to usefulness and challenges were not highly interrelated. All variables with VIF values below 5 were retained in the regression model. Finally, multiple regression analysis was conducted to predict teachers' perceptions of the future role of AI in EFL teaching based on their perceptions regarding usefulness and challenges [29]. Qualitative data were thematically analyzed using a framework outlined, which involved coding interview transcripts for repeated patterns and themes. The main themes that emerged from the data were the perceived vision of the future role of AI in EFL teaching, changes in the teacher's role, and directed training [30]. The approach enabled a more in-depth exploration of participants' experiences and complemented the quantitative findings to provide a deeper understanding of the research questions at hand.

3. RESULTS AND DISCUSSION

In this study, 123 EFL teachers from 20 universities were surveyed, along with five teachers who were interviewed for detailed insights. This analysis offers a comprehensive understanding of Bangladeshi EFL teachers' perceptions regarding the integration of AI tools into their teaching practices. The demographic profile of the study's participants (n=123) reveals a diverse representation across several key categories. The majority of respondents are female (57.7%), with males comprising 42.3% of the sample. Surprisingly, only a small part of the participants reported receiving training in AI, at 13.0%, while 87.0% have not.

3.1. Descriptive statistics for teachers' future vision for AI

Table 1, which presents the mean and SD for six items, reflects the perceptions of Bangladeshi EFL teachers regarding both the role of AI in education in the future and the importance of continuous professional development. Means for the statements are relatively high, ranging from 4.02 to 4.36, indicating a general agreement among the teachers regarding the statements. The highest mean, 4.36, was for the item "regular workshops are necessary for the teachers to keep them updated on AI utilization," showing a strong consensus on the need for ongoing training. SD ranges from a low of 0.65 to a high of 0.84, indicating moderate variability in responses; the item "AI tools will shape the future of EFL in Bangladeshi universities," had the highest variability, SD=0.81.

Table 1. Mean and SD summary for items on EFL teachers' vision for the future role of AI

Items	Mean	SD
AI tools will shape the future of EFL in Bangladeshi universities.	4.10	0.81
Making AI a regular part of education will ensure teachers' development.	4.02	0.84
Regular workshops are necessary for the teachers to be updated on AI applications.	4.36	0.65
Hands-on training in the AI integration workshop will make the teaching more effective.	4.33	0.65
Institutions should invest in AI tools to support effective teaching in the classroom.	4.28	0.77
Proper knowledge of utilizing AI in the EFL classroom will be helpful for a career.	4.35	0.80

3.2. Multicollinearity assessment of usefulness and challenges (independent variables)

Table 2 provides the values for the VIF for the independent variables related to usefulness and challenges. All the variables present VIF values below 5, which signals low multicollinearity. This ensures that the independent variables are not too highly correlated with each other and are thus suitable for inclusion in a multiple regression analysis that will predict future AI integration into EFL teaching.

Table 2. VIF values for each independent variable

Variables	Items	VIF
	Constant	13.79
Usefulness	AI tools are effective for improving the teaching proficiency of teachers.	1.73
	AI tools are effective in increasing students' engagement and motivation to learn English.	1.6
	AI tools can enhance the efficiency of Bangladeshi universities' EFL teaching in the future.	1.81
	AI tools make language learning easier and personalized.	1.61
	AI tools provide access to diverse content, which is very effective for teaching and learning.	1.75
	Institutions often lack the technical support necessary to integrate AI effectively.	1.45
Challenges	The internet connection is not always available at our institute.	1.55
	There is not enough content in AI tools to satisfy all of the needs of students.	1.22
	Students often submit plagiarized work by using AI tools.	1.21
	I will be able to detect plagiarized student work.	1.39
	Using AI tools may reduce the opportunities for face-to-face language learning.	1.38
	Using AI tools for teaching may hamper teacher autonomy.	1.35

3.3. Multiple regression analysis

The full regression analysis table, as in Table 3, provides coefficients, standard errors, t-statistics, p-values, and confidence intervals for the constant and two predictors: usefulness and challenges. For instance, the estimated coefficient for usefulness is 0.643, indicating a positive association with the dependent variable, teachers' perceptions of the future role of AI in language teaching. Its p-value for the significance of usefulness is very small (0.0000), meaning this is statistically significant. In contrast, the challenges variable has a coefficient of 0.032 with a relatively high p-value of 0.6654, and it is not a significant predictor in this model. The constant term, 1.428, represents the baseline level of the dependent variable when both predictors are zero. The width of the confidence intervals gives the range within which the actual population parameter is expected to fall. In this case, the interval for usefulness is narrow and positive, but for challenges, it is wider and crosses zero, which reinforces its lack of significance.

Table 3. Multiple regression analysis of usefulness and challenges predicting teachers' future vision for AI in EFL teaching

Variable	Coefficient	Standard error	t-statistic	p-value	95% confidence interval (lower)	95% confidence interval (upper)
Constant	1.428	0.415	3.437	0.0008	0.605	2.251
Usefulness	0.643	0.076	8.471	0.0000	0.493	0.794
Challenges	0.032	0.073	0.433	0.6654	-0.113	0.177

3.4. Findings from the interview
3.4.1. Future vision for AI in EFL teaching

As the era of AI in EFL education is on the rise, teachers are acknowledging the significant improvements in integrating AI tools in Bangladeshi university EFL teaching [11]. As Teacher-5 stated:

> "*By utilizing AI strategies, we can create an opportunity for automated assessments.*"

No one can deny that integrating AI in the classroom will be highly beneficial in enhancing existing teaching strategies. As stated by Teacher-1 and Teacher-2:

> "*AI tools can suggest to us various new teaching techniques and strategies for conducting a formative assessment. AI can play a big role [in designing] innovative assessments, which can also save time for the teachers, and they will learn new teaching strategies every day.*" (Teacher-1)
> "*In previous times, teachers had to spend their time in libraries to verify information, but with the help of AI, we can learn a lot quicker now and stay updated about the changes from time to time. AI should facilitate these tools where teachers can get a chance to stay updated in terms of academia, writing, or any source (that) will be helpful for the teachers.*" (Teacher-2)

Therefore, it is evident that every teacher holds an optimistic view regarding the effectiveness of AI tools in Bangladeshi university EFL classrooms, and they expect to learn more about AI tools for effective teaching strategies.

3.4.2. EFL teachers' evolving identity

Using AI in teaching EFL is transforming how teachers view their roles, making them more adaptable and proficient with technology, as shown in Table 4. Teacher-1 said:

"*AI will redefine our roles; we'll become more like facilitators rather than sole knowledge providers.*"

It illustrating the shift from merely providing information to helping students. However, concerns persist about relying too heavily on AI. Teacher-2 was concerned, saying:

"*I am afraid students will depend too much on AI, losing critical thinking.*"

However, many view AI as a potential path for growth. Teacher-3 said:

"*We used to be just language teachers; now, we are teachers who have to be tech-savvy.*"

Another key benefit is for personalized learning, as stated by Teacher-4:

"*AI helps me tailor lessons to individual student needs, something I just couldn't do well before.*"

Yet, the need for continuing professional development is clear. Teacher-5 made a point of noting:

"*We need continuing training just to keep up; otherwise, we're going to be left behind.*"

These reflections offer a narrative duality of opportunity and challenge as these teachers navigate their evolving identities in an AI-driven educational landscape.

Table 4. Alignment between qualitative and quantitative data

Theme	Quantitative evidence	Qualitative evidence
Future vision for AI in EFL	High mean scores (4.02–4.36) on survey items; regression: usefulness significant predictor (β=0.643, p<0.001).	Teachers emphasized AI's role in innovative assessment, time-saving, and teaching strategies (Teacher-1, Teacher-2, and Teacher-5).
Perceived usefulness of AI	VIF values are low (1.6–1.81), showing suitable predictors; regression confirms a positive impact.	Teachers report that AI enhances personalized learning, access to resources, and professional growth.
Challenges of AI integration	Regression: challenges not significant (β=0.032, p=0.665); VIF low (1.21–1.55).	Concerns about overreliance on AI, loss of critical thinking, and need for training (Teacher-2 and Teacher-5).
EFL teachers' evolving identity	Survey: high agreement on workshops and training importance; regression shows usefulness drives future vision.	Teachers describe a shift from knowledge provider to facilitator, tech-savvy roles, and emphasizing ongoing professional development.

3.5. Discussion
3.5.1. Envisioning AI in EFL teaching

The interview data reveal that teachers are highly aware that integrating AI tools in EFL teaching will enhance teaching strategies. To integrate AI tools effectively, teachers need to have proper training on AI. This aligns with the high mean scores on all items, indicating that Bangladeshi EFL teachers are generally optimistic about the role of AI as an integral part of future education, particularly in enhancing teaching effectiveness and professional development. The strong agreement on the necessity of regular workshops (mean=4.36) and hands-on training (mean=4.33) reflects the realization that teachers recognize the need for constant updates on how AI is integrated to remain relevant in carrying out their responsibilities. Similarly, teachers are optimistic about AI having the capability to reshape their roles, teaching strategies, and assessment practices, and they see potential benefits for teaching [11]. The dispersion regarding the impact of AI on the future of EFL education was slightly higher: variance=0.65, SD=0.81, perhaps reflecting different degrees of optimism or skepticism among the teachers as to how AI will influence the broader educational landscape [8].

The regression analysis gives essential insights into the views of EFL teachers at Bangladeshi universities regarding the future role of AI in language education, in light of their present opinions about its benefits and challenges. The significant positive coefficient for usefulness suggests that teachers who believe AI tools are practical and beneficial are more likely to predict a prominent place for AI in future language teaching. This result aligns with previous studies, which indicate that the perceived usefulness of AI — whether in enriching pedagogical capacity, increasing student engagement, or providing diverse content — is a critical factor in forming expectations about its future impact. This also aligns with the teaching context in Sri Lanka and India [26]. Teachers who perceive that AI can significantly enhance their teaching practices are more likely to be optimistic about its future role within the educational setting.

In contrast, the challenges variable is not a significant predictor of teachers' perceptions about the future role of AI. In interviews, educators expressed a sense of confidence that challenges, including potential plagiarism and a diminution of direct learning time, could be overcome through appropriate interventions. This mirrors the almost zero coefficient and high p-value, indicating that concerns about technical support, adequacy of content, and the loss of face-to-face time do not diminish educators' optimism or expectations about the integration of AI. This means that while teachers are aware of these challenges, they do not see them as insurmountable barriers. Instead, they view the implementation of AI as an achievable evolution, in which issues can be overcome through training, policy changes, and technological advances [18], [25]. Such an attitude of adaptability is indicative of a more general willingness to accept AI as a means for innovation, not a threat to traditional teaching approaches.

The confidence intervals suggest that the "usefulness" variable is strong, as it is all positive, thereby confirming its role as a reliable predictor. It may be advisable to consider a wider interval for "challenges" due to uncertainty in its effect, likely caused by the presence of unmeasured factors. This test indicates that demonstrating to teachers how AI tools can be beneficial will be crucial in fostering a favorable attitude towards AI in language teaching [17]. Yet, challenges must be addressed. Challenges such as poor internet connectivity, a lack of institutional AI policy, inadequate teacher training, and students' limited awareness should be addressed more seriously to maximize the positive effects of AI in teaching the English language. However, a focus on showcasing the current benefits of AI more effectively can shape the long-term perceptions and acceptance of AI in education among EFL teachers.

3.5.2. EFL teachers' new identity

Recent studies have argued that educational systems, as well as teachers' identities, are undergoing significant transformations due to technological advancements [1]. The use of AI in higher education has tremendous potential to bring improvements in teaching, learning, and organizational procedures. In EFL classrooms, AI enables the implementation of new assessment methods, tailored teaching approaches, and lesson design tailored to the diverse needs of students [10]. Evidence suggests that AI will assist teachers in automating tasks such as grading and lesson planning, thereby providing them with more time to personalize lessons, observe student learning, and refine their pedagogical strategies [8]. This change enables teachers to transition from traditional roles to those described as "digital educators," thereby expanding their professional identities and skills [23]. With the increased use of AI, teachers have been exploring how to integrate the technology into their practice and optimize EFL instruction in line with the new demands of digital times.

Challenges are raised by multiple teachers on various aspects, such as the fear that these tools will replace human interaction, including face-to-face feedback [23], [31]. Moreover, past studies also claimed that a significant challenge is the lack of proper training programs for the teachers [9], [32]. Not every teacher is familiar with the technical aspects of AI tools, and they require proper training to integrate these tools into their teaching methods effectively. Despite these challenges, the teachers recognize the need for the effective implementation of AI tools in EFL teaching. Thus, teachers have proposed that there should be regular workshops and meetings to keep both teachers and students updated on AI utilization. They propose conducting mandatory AI classes that cover basic to advanced topics related to using AI and its ethical considerations in teaching EFL [27]. As the era of AI in EFL education rises, the identity of EFL teachers is constantly emerging through the adaptation of new technologies, diverse teaching strategies, and subject knowledge based on the TPACK framework [33]–[35]. Thus, EFL teachers are evolving by using technology to enhance their teaching methods and meeting new challenges every day [36].

Current research accentuates how AI is reconfiguring EFL teaching, calling for a developed TPACK model in which educators integrate AI tools with pedagogy and content knowledge. Although AI facilitates customized learning and automation, it also has drawbacks, including a lack of training and ethical issues. Successful integration necessitates ongoing professional development to fill technical loopholes so that educators can utilize AI's potential without compromising human-centered pedagogy. This shift emphasizes how TPACK must evolve, prioritizing dynamic interaction among technology, pedagogy, and subject matter in the age of AI. Though TPACK theoretically equips teachers for AI integration, TAM more accurately

accounts for the implementation gaps discovered in this research, wherein perceived usefulness and ease-of-use issues hampered adoption despite increasing teachers' technological-pedagogical awareness. The education ministry and universities must recognize the evolving digital identities of EFL teachers by offering structured faculty development programs, including AI-based training, workshops, and ongoing professional development, to promote effective pedagogy and policy-sensitive teaching practices.

3.5.3. Implications

Recent research has shown that education systems and teachers' identities are undergoing rapid changes due to new technological developments [1]. It is predicted that the academic integration of AI in higher education, particularly in EFL classrooms, would help enhance teaching, learning, and institutional processes. AI offers innovative assessment methods, novel teaching strategies, and adaptable lessons to cater to diverse student needs [10]. Moreover, it helps teachers automate tasks such as assessment and curriculum design, thereby allowing them more time to tailor teaching materials and track students' progress [8]. This change facilitates teachers' shift from traditional roles to "digital educators," thereby enhancing their professional identities and pedagogical competencies [23]. The outcomes of this study have significant implications for theoretical models, professional practice, and policy making. Theoretically, it extends the TPACK framework by emphasizing the integration of technology, pedagogy, and content knowledge [19]. The TPACK model needs to be extended to encompass AI's position in education. AI calls for adaptive harmony of technology, pedagogy, and content, mandating that instructors learn to use AI tools in support of personalized learning. Yet, training and infrastructure gaps reflect systemic unpreparedness, calling for institutional support to implement AI-augmented TPACK successfully.

The findings have shown that for the successful implementation of AI in the classroom, teachers need both the technical and pedagogical skills to develop the necessary competencies. The potential of AI to offer tailor-made, interactive learning experiences is particularly valuable in EFL settings. Each educational institution should ensure that AI tools are aligned with the diverse needs and learning objectives of its students. Bangladeshi EFL instructors have the same possibilities for AI integration as their counterparts in India, Sri Lanka, and Indonesia. Still, they are confronted with larger infrastructural and training deficits, underscoring both commonalities and contextual variation. The study emphasizes the need for continuous professional development [9], [37]–[39]. Teachers must receive regular training on AI tools and pedagogical approaches. Institutions should invest in the necessary infrastructure to support the integration of AI, enabling teachers to enhance teaching and foster student development within an ever-evolving educational landscape. Countries with a similar scenario in academia can apply the recommendations after prior examination.

3.5.4. Limitations

While this study can make significant contributions, it is not without limitations. Although having a sample of 123 EFL teachers from 20 universities is valuable, it may not capture the broader landscape of Bangladeshi higher education. A larger sample with greater diversity among respondents may help generalize the insights into how AI is perceived and used in various educational settings. This study has limitations in that it primarily relied on surveys and semi-structured interviews, which are informative but may not fully capture the experiences of teachers in using AI tools.

4. CONCLUSION

This study investigated the perceptions of 123 Bangladeshi EFL teachers from 20 universities regarding the integration of AI in higher education. Findings indicate that the teachers hold very positive expectations of the role that AI can play in enhancing the EFL instructional process. They perceive AI as a revolutionary tool that can aid in personalizing learning and improving the efficiency of instruction, hence enriching the teaching-learning experience. This is also considered necessary for continuing professional development and institutional support in the effective integration of AI in language teaching. A well-resourced, suitably trained institution is one where teachers can be empowered to leverage the potential of AI fully. Further research in this area should investigate more innovative ways of integrating AI into teaching and assessment practices. While the future of AI in EFL education appears promising, its success ultimately depends on the strategic implementation and long-term commitment of institutions.

This research has several actionable recommendations. First, the institution should support structured and continuous training programs that address both the technical and pedagogical aspects of AI, building teachers' confidence and competence in using AI to enhance their instructional practices. There needs to be a mandate for AI literacy in teacher training, building EdTech collaborations to develop practical toolkits, and establishing government-funded training hubs —all within proven international frameworks—

to ensure effective and scalable AI integration. Future research should consider a larger sample size and diversification of methodologies, including longitudinal studies and real-time classroom observations, to enhance the understanding of the phenomenon. Such approaches would provide richer data on how AI transforms teaching practices and, in turn, its impact on learning outcomes. The subsequent investigations could also focus on how to harmoniously integrate AI into language assessments to enhance the evaluation of student performance in EFL settings.

FUNDING INFORMATION

This study did not receive any external funding.

AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

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C : **C**onceptualization	I : **I**nvestigation	Vi : **Vi**sualization
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So : **So**ftware	D : **D**ata Curation	P : **P**roject administration
Va : **Va**lidation	O : Writing - **O**riginal Draft	Fu : **Fu**nding acquisition
Fo : **Fo**rmal analysis	E : Writing - Review & **E**diting	

CONFLICT OF INTEREST STATEMENT

The authors declare that there is no conflict of interest in this study.

ETHICAL APPROVAL

The research was conducted in accordance with strict ethical guidelines. To protect confidentiality and not violate privacy, in accordance with data protection laws, all information concerning respondents was anonymized. Informed consent for the use of anonymized data was acquired from the university, and the dataset did not include any personally identifiable information.

DATA AVAILABILITY

Derived data supporting the findings of this study are available from the corresponding author, [MMH] on request.

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