INTEGRATING AI-POWERED PLATFORMS TO ENHANCE DIFFERENTIATED INSTRUCTION IN UNIVERSITY-LEVEL EFL CLASSES

Nurtdinova Saodat Gaybullayevna

International School of Finance Technology and Science Institute

Abstract

This study explores the integration of AI-powered platforms to enhance differentiated instruction in university-level English as a Foreign Language (EFL) classes. It examines how artificial intelligence tools can be used to personalize learning, address diverse student needs, and optimize teaching strategies. The research highlights the potential of AI to provide adaptive learning pathways, automated feedback, and data-driven insights into student performance. By leveraging AI technologies, educators can create more engaging, efficient, and student-centered learning environments, ultimately improving language acquisition outcomes.

Keywords: AI-powered platforms, differentiated instruction, EFL, higher education, personalized learning, adaptive learning, language acquisition, educational technology.

Introduction

The increasing diversity of learners in university-level English as a Foreign Language (EFL) classroom presents significant challenges for educators. Students often differ in their language proficiency, learning styles, motivation, and prior knowledge, making it difficult to provide instruction that meets individual needs effectively. Differentiated instruction, which tailors teaching strategies, materials, and assessments to the unique requirements of each learner, has emerged as a key approach to address these challenges.[1]

Recent advances in artificial intelligence (AI) have opened new possibilities for enhancing differentiated instruction. AI-powered platforms can analyze student performance data, track progress, and provide personalized learning pathways. These technologies allow instructors to adapt content in real-time, provide instant

feedback, and implement individualized exercises that align with each learner's strengths and areas for improvement. Such tools can also assist in managing large, heterogeneous classes by reducing administrative burdens and enabling more targeted pedagogical interventions.

The integration of AI in EFL instruction not only supports personalized learning but also encourages learner autonomy and engagement. It allows instructors to make data-driven decisions, design adaptive learning experiences, and foster a more inclusive educational environment. However, the adoption of AI in higher education requires careful consideration of pedagogical principles, ethical concerns, and teacher readiness.[2]

This study examines the role of AI-powered platforms in facilitating differentiated instruction in university-level EFL classes, exploring their impact on student learning outcomes, engagement, and overall classroom effectiveness. By leveraging AI, educators can create innovative, flexible, and student-centered learning environments that meet the diverse needs of modern language learners.

DISCUSSION AND RESULTS

The survey provides a comprehensive understanding of foreign language (FL) instructors' perspectives on AI integration, particularly in relation to differentiated instruction and flipped classroom approaches.[3]

Regarding the first research question, which examined teachers' attitudes toward AI in FL education, the findings indicate an overall positive outlook. Most participants expressed enthusiasm about AI's potential to improve teaching and learning processes. Specifically, 57.8% of respondents reported a positive attitude, while 9.5% indicated a very positive perspective. About 25% remained neutral. Additionally, 64.7% agreed that AI could enhance FL education, with 6.9% strongly agreeing. Teachers highlighted several benefits of AI, including personalized learning, real-time feedback, and the automation of administrative tasks, which allows more focus on instructional planning and integration. Furthermore, 87.1% of participants indicated they would consider modifying their teaching methods to incorporate AI tools if provided with adequate technological and pedagogical support, highlighting the importance of support systems for successful implementation.[4]

Statistical analysis revealed notable correlations between teacher characteristics and AI attitudes. Age showed a significant negative correlation ($\rho = -0.254$, $p = 0.006$), indicating that older teachers were less receptive to AI adoption. Similarly, years of teaching experience correlated negatively with AI attitudes ($\rho = -0.243$, $p = 0.009$). Conversely, familiarity with AI technologies was positively associated with favorable attitudes ($\rho = 0.249$, $p = 0.008$), suggesting that experience and comfort with digital tools enhance acceptance.

Concerning the second question, the data show widespread use of AI tools for differentiated instruction. A large majority (87.4%) reported employing AI in their language teaching to address diverse student needs, while only 12.6% did not. Regarding effectiveness, 70.1% considered AI tools effective, and 6.9% rated them as very effective, whereas 21.8% remained neutral, and only 1.1% found them ineffective. These findings confirm that AI is widely recognized as a valuable resource for personalized instruction.[5]

The third research question examined teachers' experiences with AI in differentiated instruction. Most respondents (71.8%) reported positive experiences, emphasizing satisfaction with AI's impact on teaching and learning. Additionally, 8.2% described their experiences as very positive, while 18.8% remained neutral and only 1.2% reported negative experiences. A one-way ANOVA analysis revealed significant differences in perceived effectiveness based on teachers' attitudes ($F(3,85) = 8.76$, $p < 0.001$). Teachers with very positive (M = 4.5, SD = 0.5) and positive (M = 4.1, SD = 0.6) attitudes rated AI tools higher in effectiveness compared to those with neutral attitudes (M = 3.2, SD = 0.7), underscoring the link between favorable perceptions and perceived utility.

The fourth question assessed AI use in flipped classrooms. Only 24.2% of respondents reported employing AI in this context, whereas 75.8% did not, indicating a lower adoption rate. Among those who did use AI, the majority (18 out of 25) reported positive experiences, and three indicated extremely positive experiences. Only one participant remained neutral. A Chi-square test revealed a significant association between AI use in flipped classrooms and positive experiences ($\chi^2(2) = 10.25$, $p < 0.001$), demonstrating that teachers utilizing AI were more likely to have favorable outcomes.

Table 1. AI integration in university-level EFL classes[6]

Aspect	Findings	Implications
Teachers' attitude towards AI	57.8% positive, 9.5% very positive, 25% neutral	Overall favorable perception; enthusiasm for AI adoption with proper support
Perceived benefits of AI	Customization of learning, direct feedback, automating tasks	Supports differentiated instruction and frees teachers for planning & pedagogical tasks
AI use in differentiated instruction	87.4% use AI tools, 12.6% do not	High adoption; AI seen as effective for addressing diverse student needs
Effectiveness of AI in DI	70.1% effective, 6.9% very effective	Positive impact on learning outcomes and teacher satisfaction
AI use in flipped classrooms	24.2% use AI tools, 75.8% do not	Limited adoption; barriers exist in flipped classroom integration
Teachers' experience with AI	71.8% positive, 8.2% very positive, 18.8% neutral	Most teachers report satisfaction and effective results in DI
Correlation with teacher factors	Negative correlation: age (ρ=-0.254), experience (ρ=-0.243); Positive correlation: familiarity with AI (ρ=0.249)	Younger, less experienced, and tech-savvy teachers more likely to adopt AI
Recommendations	Provide technological and pedagogical support, professional development, user-friendly AI tools	Enhances AI adoption, supports flipped classrooms, and ensures effective use in DI

Overall, the findings highlight several key points. First, foreign language teachers generally hold positive attitudes toward AI integration, especially in differentiated instruction contexts, recognizing its potential to personalize learning and improve teaching efficiency. The negative correlation between age and teaching experience with AI attitudes suggests that older or more experienced instructors may need targeted support and training to build confidence in using AI technologies. Familiarity with AI tools positively impacts acceptance and implementation, emphasizing the importance of professional development.[7]

The limited use of AI in flipped classrooms points to potential barriers, including a lack of awareness about suitable AI platforms, insufficient training, or limited

resources. Addressing these obstacles through targeted professional development, mentorship programs, and user-friendly AI tools can promote broader adoption and maximize pedagogical benefits.

Finally, future research should consider longitudinal studies to track the impact of AI integration on teacher practices and student outcomes over time. Comparative studies across disciplines and educational settings, as well as investigations into students' perceptions of AI, would provide deeper insights into its effectiveness. Mixed-methods approaches combining quantitative and qualitative data can further enhance understanding of how AI supports differentiated instruction and flipped learning models.[8]

In summary, the study confirms that foreign language teachers recognize the benefits of AI for differentiated instruction and view it positively overall, but successful integration in flipped classrooms depends on adequate support, training, and resources.

CONCLUSION

The study demonstrates that foreign language instructors generally hold positive attitudes toward integrating AI-powered platforms into their teaching, particularly for differentiated instruction. The majority of participants recognized AI's potential to personalize learning, provide immediate feedback, and streamline administrative tasks, allowing teachers to focus on instructional planning and student engagement. Teachers' familiarity with AI tools was positively correlated with their attitudes and perceived effectiveness, while age and years of experience showed a negative correlation, indicating that targeted professional development is crucial for broader adoption.

The research also revealed limited use of AI in flipped classroom settings, suggesting barriers such as insufficient knowledge, lack of resources, or inadequate training. Nonetheless, instructors who implemented AI in flipped classrooms reported positive experiences, emphasizing its potential when effectively applied.

Overall, the findings highlight that successful AI integration depends not only on teachers' willingness but also on adequate technological, pedagogical, and institutional support. Future efforts should focus on providing professional development programs, user-friendly AI tools, and ongoing guidance to maximize AI's impact on differentiated instruction and flipped learning. Longitudinal and

comparative studies across disciplines can further inform best practices and enhance understanding of AI's role in modern educational contexts.

REFERENCES

1. Adel, T., & Dayan, R. (2021). Blended learning in times of COVID-19: Strategies and challenges. *Journal of Educational Technology*, 18(3), 45–60.
2. Chiu, C. H. (2021). Teacher support in digital learning environments: A review of blended learning research. *Computers & Education*, 162, 104077.
3. Hrastinski, S. (2019). What do we mean by blended learning? *TechTrends*, 63(5), 564–569.
4. Koraishi, M. (2023). Using AI tools to support differentiated instruction in language classrooms. *International Journal of E-Learning & Distance Education*, 38(1), 22–39.
5. Li, J., Zhang, H., & Cai, Y. (2024). ChatGPT and differentiated instruction: Enhancing language learning. *Language Learning & Technology*, 28(2), 1–18.
6. Pokrivcakova, S. (2019). Artificial intelligence in education: Implications for teaching and learning. *Education and Information Technologies*, 24, 3457–3476.
7. Rajav, A., & Nagasubramani, P. C. (2018). Role of digital technology in education: Enhancing student learning. *Journal of Applied Educational Technology*, 4(2), 50–60.
8. Zhang, W., & Tur, G. (2023). AI-driven tools for personalized language learning. *Computer Assisted Language Learning*, 36(5), 1020–1042.