EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 2, Issue 2, February 2026
brightmindpublishing.com
ISSN (E): 3061-6972

THE DEVELOPMENT OF LEARNER AUTONOMY THROUGH STRUCTURED AI INTEGRATION IN UNIVERSITY EFL INSTRUCTION

Karimbaeva Asal Shukhratovna
Trainee-Teacher of the English Methodology Department
Uzbekistan State World Languages University

Abstract

This study examines the impact of structured artificial intelligence (AI) integration on the development of learner autonomy in a university English as a Foreign Language (EFL) context. While AI tools are increasingly present in higher education, their pedagogical value in fostering autonomous learning remains insufficiently explored. Grounded in theories of learner autonomy and self-regulated learning, the research investigates whether guided AI use can enhance students' goal-setting, strategic planning, self-monitoring, and self-evaluation skills. A quasi-experimental mixed-method design was implemented with sixty B2-level university students divided into experimental and control groups. Over a six-week instructional period, the experimental group engaged in structured AI-supported learning activities designed to promote reflective and strategic engagement, whereas the control group followed traditional instructional practices. Quantitative data were collected through a validated learner autonomy questionnaire administered before and after the intervention, complemented by qualitative insights from focus-group interviews. The findings demonstrate statistically significant improvement in overall autonomy scores within the experimental group, particularly in metacognitive dimensions such as planning and monitoring. The results suggest that AI tools, when embedded within a clearly defined pedagogical framework, can function as cognitive scaffolds that support autonomous learning behaviors. The study highlights the central role of instructional design in determining the educational value of emerging technologies and provides practical implications for responsible AI integration in language education.

Keywords: Learner autonomy; artificial intelligence in education; EFL instruction; self-regulated learning; metacognitive development; instructional design; technology-enhanced learning; higher education.

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 2, Issue 2, February 2026
brightmindpublishing.com
ISSN (E): 3061-6972

Introduction

Learner autonomy has been widely recognized as a foundational objective in contemporary language education. Originally defined as the ability to take responsibility for one's own learning (Holec, 1981), autonomy has evolved into a multidimensional construct encompassing goal-setting, strategic planning, self-monitoring, self-evaluation, and sustained engagement (Benson, 2011). In university-level English as a Foreign Language (EFL) contexts, the development of autonomy is particularly significant, as students are expected to manage increasingly complex academic tasks with diminishing direct supervision. The shift toward learner-centered pedagogy and lifelong learning frameworks further underscores the necessity of cultivating autonomous learning behaviors.

The theoretical underpinnings of learner autonomy intersect closely with self-regulated learning theory. Zimmerman (2002) conceptualizes self-regulation as a cyclical process consisting of forethought, performance control, and self-reflection. Similarly, Pintrich (2004) emphasizes metacognitive awareness, motivational regulation, and behavioral engagement as central components of academic success. From a sociocultural perspective, autonomy is not equated with isolation but with the gradual internalization of externally mediated strategies (Little, 2007). These perspectives suggest that autonomy develops through structured scaffolding rather than through the removal of guidance.

Technological tools have frequently been associated with increased opportunities for autonomous learning. Research in computer-assisted language learning (CALL) indicates that digital environments may enhance learner agency by enabling flexible access to resources and personalized pacing (Reinders & White, 2016). However, the relationship between technology and autonomy is not inherently positive. Stockwell (2013) argues that technology alone does not guarantee deeper engagement and may foster superficial task completion if not pedagogically framed.

The emergence of artificial intelligence (AI) tools has introduced new dimensions to this discussion. AI-powered chat assistants provide immediate feedback, planning support, and interactive prompts. While public discourse often centers on concerns regarding academic integrity and authorship (Kasneci et al., 2023), empirical research examining AI's role in developing learner autonomy remains limited, particularly in EFL contexts. Preliminary evidence suggests that AI may

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 2, Issue 2, February 2026
brightmindpublishing.com
ISSN (E): 3061-6972

facilitate metacognitive engagement by prompting reflection and strategy adjustment (Chan & Hu, 2023), yet systematic classroom-based investigations are still scarce.

The present study examines whether structured AI integration within university EFL instruction contributes to measurable development of learner autonomy. Unlike unrestricted AI use, the intervention was designed to position AI as a scaffold for strategic planning and reflective learning rather than as a content generator. The study addresses three research questions:

1. Does structured AI integration significantly enhance learner autonomy among university EFL students?
2. Which dimensions of autonomy are most affected by AI-supported learning?
3. How do students perceive AI's role in their learning process?

Methods

A quasi-experimental mixed-method design was employed over a six-week instructional period in an Academic English course at a university language department. Sixty second-year students assessed at B2 level participated in the study. Participants were assigned to an experimental group (n = 30) and a control group (n = 30). Both groups followed identical syllabi, completed comparable academic tasks, and received equivalent instructional time. The structured integration of AI-supported activities constituted the only manipulated variable.

Learner autonomy was measured using an adapted EFL Learner Autonomy Questionnaire consisting of twenty-five Likert-scale items assessing five dimensions: goal-setting, strategic planning, self-monitoring, self-evaluation, and learning persistence. The instrument demonstrated acceptable reliability (Cronbach's $\alpha = 0.87$). The questionnaire was administered as both pre-test and post-test.

During the intervention, the experimental group engaged in guided AI-supported activities. AI tools were used for generating study plans, outlining assignments, identifying gaps in understanding, and formulating reflective questions. Explicit restrictions were imposed to prevent full task generation or direct submission of AI-produced content. Instructional sessions incorporated discussions on responsible AI use, effective prompt formulation, and reflective strategy

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 2, Issue 2, February 2026
brightmindpublishing.com
ISSN (E): 3061-6972

evaluation. The control group completed the same tasks and received traditional teacher feedback without AI integration.

Quantitative data were analyzed using paired-sample t-tests to examine within-group changes and independent-sample t-tests to compare post-test differences between groups. Effect sizes were calculated using Cohen's d. Additionally, two focus-group interviews were conducted with selected participants from the experimental group. Qualitative data were analyzed thematically to identify recurring perceptions and experiences related to AI-supported learning.

Results

Statistical analysis revealed improvement in learner autonomy scores within both groups; however, significant gains were observed only in the experimental group. The increase in overall autonomy scores in the experimental group reached statistical significance ($p < .01$) with a moderate effect size (Cohen's $d = 0.68$). In contrast, the control group demonstrated non-significant changes.

Subscale analysis indicated that the most substantial improvements in the experimental group occurred in goal-setting ($p < .01$), strategic planning ($p < .05$), and self-monitoring ($p < .01$). Moderate but significant gains were observed in self-evaluation, whereas changes in learning persistence were not statistically significant. These findings suggest that structured AI integration primarily influenced metacognitive dimensions of autonomy.

Qualitative findings corroborated the quantitative results. Participants described AI as facilitating clearer task organization, encouraging proactive planning, and increasing awareness of individual strengths and weaknesses. AI was frequently characterized as a "support tool" or "guide" that enhanced reflection rather than replacing independent effort. Students reported greater confidence in structuring their learning processes and making strategic decisions.

Discussion

The findings indicate that structured AI integration can positively contribute to the development of learner autonomy in university EFL contexts. The significant improvements observed in goal-setting and self-monitoring align with theoretical frameworks of self-regulated learning (Zimmerman, 2002) and support the view that autonomy develops through guided mediation (Little, 2007). AI tools appear

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 2, Issue 2, February 2026
brightmindpublishing.com
ISSN (E): 3061-6972

to have functioned as cognitive scaffolds, facilitating metacognitive engagement during the forethought and performance phases of learning.

The absence of significant change in persistence suggests that motivational dimensions of autonomy, as conceptualized within self-determination theory (Deci & Ryan, 2000), may require longer-term intervention or additional affective strategies. While AI may support strategic regulation, intrinsic motivation and sustained effort likely depend on broader pedagogical and contextual factors.

Importantly, the results reinforce the argument that technological integration alone does not produce autonomy. The structured framework, explicit boundaries, and reflective discussions were central to ensuring that AI functioned as a developmental resource rather than a substitute for cognitive effort. This finding contributes to ongoing debates regarding AI in education by emphasizing the decisive role of instructional design.

Several limitations must be acknowledged. The study was conducted within a single institutional setting and over a limited duration. Longitudinal research is necessary to determine sustained effects. Additionally, reliance on self-reported measures may introduce response bias. Future research may incorporate behavioral indicators of autonomy or cross-institutional comparisons to strengthen generalizability.

Despite these limitations, the study provides empirical evidence that structured AI integration can enhance specific dimensions of learner autonomy among B2-level university EFL students. The findings suggest that AI tools, when embedded within theoretically grounded and pedagogically intentional frameworks, may support metacognitive development and strategic learning behaviors. Rather than framing AI as inherently beneficial or detrimental, the results highlight that its educational impact depends primarily on thoughtful and responsible instructional design.

References

1. Benson, P. (2011). Teaching and researching autonomy (2nd ed.). Routledge.
2. Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: Perceptions and implications for higher education. Educational Technology & Society, 26(3), 1–15.

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 2, Issue 2, February 2026
brightmindpublishing.com
ISSN (E): 3061-6972

3. Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. Psychological Inquiry, 11(4), 227–268.
4. Holec, H. (1981). Autonomy and foreign language learning. Pergamon.
5. Kasneci, E., et al. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. Learning and Individual Differences, 103, 102274.
6. Little, D. (2007). Language learner autonomy: Some fundamental considerations revisited. Innovation in Language Learning and Teaching, 1(1), 14–29.
7. Pintrich, P. R. (2004). A conceptual framework for assessing motivation and self-regulated learning. Educational Psychology Review, 16(4), 385–407.
8. Reinders, H., & White, C. (2016). 20 years of autonomy and technology: How far have we come? Language Learning & Technology, 20(2), 143–154.
9. Stockwell, G. (2013). Technology and learner autonomy. In M. Thomas et al. (Eds.), Contemporary computer-assisted language learning (pp. 104–120). Bloomsbury.
10. Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. Theory Into Practice, 41(2), 64–70.