INVESTIGATING EFL STUDENTS' ATTITUDES TOWARDS AI AND LEARNER AUTONOMY IN LANGUAGE LEARNING

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Over the past few years, studies on using technology in foreign language education have gained popularity among researchers. With the advent of new artificial intelligence (AI) technologies which are built on machine learning and digital intelligence systems, language education has been transformed into a more effective and innovative process not only for teachers but also for students. Considering the huge potential they have, ways to utilize AI tools pedagogically must be explored from several aspects.

Computer Assisted Language Learning (CALL), originating in the 1960s, has enabled learners to design their own paths for developing their language skills. However, as pointed out by Nobre (2021), language education must be enhanced ensuring the right balance between technological benefits and traditional features. CALL and the application of AI in educational contexts have also redefined the roles of teachers and students in language classrooms by creating more learner-centred environments (Danesi, 2024).

As one of the key aspects of language education, learner autonomy is connotated with the concepts of liberty, self-rule, freedom of the will, individuality, responsibility, and self-knowledge (Dworkin, 2015; Liu et al., 2022). According to the common definition made by Holec (1981), in the context of language learning, being autonomous refers to "the ability to take charge of one's own learning" (p. 3). In their book, Hilton and Pellegrino (2012) describe some skills such as critical thinking, problem-solving, collaboration, effective

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communication, motivation, and learner autonomy which are regarded as the essential competences of the 21st century. Benson (2012) suggests three criteria for learner autonomy: a) students' ability to take charge of their learning, b) students' willingness to be in control, and c) a learning context that enables learner control. Moreover, as stated by Cotterall and Crabbe (2012), learners need to be inspired to select their learning materials, reflect on their performance, and assess their own learning process to achieve learner autonomy. Hence, AI and digital learning tools should be integrated to provide students with a more dynamic learning experience.

Learner autonomy can be fostered with a proper collaboration of technology and traditional teaching methods. Flipped classrooms can be regarded as a practice of this approach because they allow students to personalize their learning process with guidance from teachers. Fuchs et al. (2021) refer to Reinders and White's (2016) anticipation that educational practice and theory are progressing toward a phase where technology supports a shift from a classroom-centred approach—and, in some cases, from formal education entirely—toward a focus on learners' personal lives and experiences as central to the learning process. Especially after the COVID-19 pandemic which impacted the social and educational contexts worldwide, online education and language learning platforms have played an important role in reforming the methods by which learners improve their linguistic abilities. Thus, many educational institutions, including the current research context, are aiming to prepare their students for unanticipated changes and conditions in learning contexts. Accordingly, it can be claimed that there is a need to explore students' attitudes toward using AI in language learning and their influence on developing learner autonomy. Considering this main goal, the current research has three objectives: a) to understand university students' attitudes towards AI use in language education, b) to explore the correlation between attitudes towards AI use and learner autonomy in language education, and c) to reveal any possible relationship between demographic variables and AI use and learner autonomy.

To meet these objectives, the following research questions were posed:

1. What are the perceptions of university students' use of AI in language learning and learning autonomy?
2. Is there a relationship between attitudes towards using AI and learner autonomy?

3. Are there any significant differences in participants' attitudes toward using AI & learner autonomy based upon their demographic variables (gender, age, department, English Level)?

Literature Review

AI Use in Language Education

Recently, numerous studies have been conducted to examine the role of technology in second language education (Bajaj & Bose, 2020; Fitria, 2021; Shin et al., 2021; Tulasi & Rao, 2023). Most of these studies focus on the positive impacts of using AI in language education. As stated by Yufeia et al. (2020), artificial intelligence technology is utilized in several educational areas such as automatic grading systems, teacher's feedback, adaptive and personalized learning. Yanhua (2020) also envisages that artificial intelligence will upgrade effective language teaching by offering innovative models for teachers and students. According to Barrios-Beltran (2024), the use of AI tools can facilitate the development of language skills as they enable the creation of dynamic learning environments that fulfil students' distinct needs.

However, research has shown that there can be some challenges to using technology and AI tools in language teaching and learning (Berendt et al., 2020; Khazaal, 2024; Kostka & Toncelli, 2023). In their systematic review, Crompton et al. (2024) reveal that technical problems, teachers' and students' limited skills in using technology, anxiety, and the risk of standardizing language can be some of the disadvantages. Hockly (2023) also displays the current use of AI in ELT and draws attention to possible problems such as ethical issues and privacy and suggests some ways like familiarizing with related laws to minimize the negative effects of using AI in language teaching. Furthermore, an extensive review by Law (2024) presents the potential benefits and concerns of using AI in teaching. It calls for more practical research on the influence and validity of AI tools highlighting the importance of professional development to use them effectively.

As claimed by Sahai et al. (2021), the role of teachers in classrooms is changing due to the advancements in AI technology so teachers need to welcome the benefits of using AI tools for their profession. There are a few studies addressing teachers' attitudes and/or perceptions of AI in language teaching (Al-khresheh, 2024; Nguyen, 2021; Ulla et al., 2023; Yanhua, 2020). Ulla et al. (2023) reveal that EFL teachers have positive attitudes regarding the use of *ChatGPT* in language teaching especially for lesson planning, but they have some concerns about its reliability and its ability to foster learner autonomy. In their study, Dincer

and Bal (2024) investigated teachers' perceptions and familiarity with AI use in language teaching in a Turkish EFL context. They concluded that teachers feel some concerns about AI including trust, misuse, privacy, and the need for certain policies.

Attitudes towards AI use in language education should also be examined from the students' perspectives. Kushmar et al. (2022) unveiled students' perceptions of using AI in learning English and found out that students have a fear of lacking real contexts of language practice in addition to losing their creativity, spontaneity, and expression of emotions. It was suggested that humans must be a part of the system where AI is integrated into learning as educational experts and content designers. Yıldız (2023) designed and utilized a tool called *Measurement of Attitude in Language Learning with AI (MALL:AI*) to evaluate EFL students' attitudes toward using AI in language learning and found that AI tools are commonly adopted by language learners at higher education in Türkiye.

In another study, Vo and Nguyen (2024) explored university students' attitudes toward using *ChatGPT* in language learning based on their genders and class levels. Consequently, they discovered that most students had positive attitudes about *ChatGPT*, and gender did not affect their perceptions whereas class levels made a difference. Finally, Ng and Ravana (2024) utilized the theory of planned behaviour to explore students' perceptions of using AI for academic tasks. They found that students' perceptions are shaped around their intentions, cultural and educational backgrounds, and subjective norms such as social pressure or expectations, so these perceptions are quite complex. Yet, there is a need to conduct more studies on students' perceptions and attitudes on AI use in the language learning process.

Relationship Between AI Use and Learner Autonomy in Language Education

In light of the previous findings, it can be understood that there is a close link between employing technology and developing learner autonomy in language education. Nevertheless, there is a limited number of studies investigating the relationship between AI use and learner autonomy. Tahir and Tahir (2023) who explore possible advantages and challenges of including technology in the teaching process for developing learner autonomy of students in secondary education level suggest that it enhances the quality of education by empowering learner autonomy. Respectively, Arnold and Fonseca-Mora (2017) remind that teachers and students should be trained to fully benefit from technological tools.

Research found that flexible learning environments and online platforms improve language students' autonomy and self-management skills changing their perceptions on learner autonomy (Tsai, 2021). Similarly, Anis (2023) claims that using language applications and integrating AI tools in ESL can promote motivation, diversity, flexibility, participation, and personalized learning. Agustini (2023) also investigated the impact of using *ChatGPT* in supporting learner autonomy of Indonesian language students of English. It was found that instant feedback and personalized support provided by *ChatGPT* assist learners to become independent learners. A systematic review on AI use in online learning and its impact on personalized education was presented by Dogan et al. (2023). Hence, more empirical studies are required to understand the role of AI in developing language learner autonomy in the context of Türkiye, especially at higher education where learner autonomy is a prioritized skill.

Method

Research Model

This study aims to explore the correlation between attitudes toward AI and learner autonomy, along with participants' perceptions of these concepts. To address these aims, a quantitative research method was employed. Dulock (1993) describes descriptive analysis as a means to examine one or more variables and any associations between them. Similarly, Omair (2015) notes that a descriptive study highlights the distinctive characteristics of a sample without requiring a comparison group. Accordingly, descriptive, inferential, and correlational analyses were conducted to meet the objectives of the study.

Setting and Participants

This research was conducted during the 2023-2024 Summer School at a state university in Kayseri, Türkiye, involving 118 preparatory students (see Table 1) enrolled in a program aimed at equipping them with essential English skills for their respective departments.

Data Collection Tools

Participants were asked to fill out their demographic information, such as their gender, age, English level, and department. After that, they were asked to complete two questionnaires, both of which were 5-point Likert scale. Two questionnaires were used as data collection tools in this study. The first

instrument, titled *Measurement of Attitude in Language Learning with AI (MALL:AI)*, was developed by Yıldız in 2023 and consists of 15 items across three subscales: Cognitive, Behavioural, and Communicative. Participants filled in the questionnaire's first part by using a 5-point Likert scale. The reliability of this scale was found by utilizing Cronbach's Alpha reliability and it was .84. The second tool, the *Learner Autonomy Scale (LAS)*, was created by Orakçı and Gelişli (2017) and includes 14 items without subscales. Data were collected through online platforms using Google Forms. Participants filled in the questionnaire's first part by using a 5-point Likert scale. The reliability of this scale was found out by utilizing Cronbach's Alpha reliability and it was .71. These tools were selected for their focus on relevant aspects of language learning and autonomy in the context of AI.

Data Analysis

SPSS Version 27.0 was used for data analysis, employing descriptive, inferential, and correlational statistics. Descriptive analysis was conducted to ascertain participants' perceptions of AI and learner autonomy. Inferential analysis examined whether significant differences exist based on participants' gender, age, English level, department, and attitudes toward AI and learner autonomy. Finally, correlational analysis was performed to determine whether a correlation exists between attitudes toward AI and learner autonomy.

Results

Table 1

Inferential Results of Learner Autonomy and Dependent Variables

Dependent Variable		M	sd	t / F*	p-value
Gender	Female	3.69	0.34	-1.01	.183
	Male	3.75	0.34		
Age	18-20	3.70	0.34	-0.83	.407
	21+	3.77	0.36		
English Level	A2	3.86	0.26	1.64	.198
	B1	3.66	0.34		
	B2	3.76	0.34		

	Computer Engineering	3.74	0.29		
	Bioengineering	3.78	0.23		
	Economy	4.01	0.30		
	EEE	3.60	0.39		
	Industrial Engineering	3.75	0.34		
	Civil Engineering	3.87	0.48		
Department	Business Administration	3.61	0.54	0.84	.593
	Mechanical Engineering	3.75	0.30		
	Architecture	3.61	0.32		
	MBG	3.73	0.31		
	Psychology	3.70	0.30		
	Political Science and International Relations	3.75	0.29		

**t value is for independent t-tests, F value is for ANOVA.*

Table 1 presents the analysis of demographic variables in relation to learner autonomy. No significant difference was observed between male (M =3.75, SD =0.34) and female participants (M =3.69, SD = 0.34), t = -1.01, p =.183. Similarly, age groups 18–20 (M =3.70, SD =0.34) and 21+ (M =3.77, SD =0.36) did not differ significantly, t =-0.83, p =.407. English proficiency levels (A2, B1, and B2) also showed no significant differences, F =1.64, p =.198. Finally, no significant variance was found across departments, F =0.84, p =.593. Overall, these results indicate that demographic variables, including gender, age, English level, and department, do not have a statistically significant effect on learner autonomy in this study.

Table 2

Inferential Results of AI and Dependent Variables

Dependent Variable		**M**	**Sd**	**t / F****	**p-value**
Gender	Female	3.32	0.51	-1.34	.183
	Male	3.44	0.44		
Age	18-20	3.35	0.49	-0.78	.432
	21+	3.45	0.50		

English Level	A2	3.48	0.73	1.36	.259
	B1	3.43	0.46		
	B2	3.28	0.49		
Department	Computer Engineering	3.52	0.65	1.01	.438
	Bioengineering	3.17	0.51		
	Economy	3.85	0.48		
	EEE	3.35	0.53		
	Industrial Engineering	3.40	0.37		
	Civil Engineering	3.53	0.20		
	Business Administration	3.46	0.58		
	Mechanical Engineering	3.31	0.44		
	Architecture	3.46	0.58		
	MBG	3.40	0.36		
	Psychology	3.23	0.43		
	Political Science and International Relations	3.19	0.45		

**t value is for independent t-tests, F value is for ANOVA.*

Table 2 presents the analysis of demographic variables in relation to attitudes toward AI. No significant difference was observed between female (M =3.32, SD =0.51) and male participants (M =3.44, SD =0.44), t =-1.34, p =.183. Similarly, age groups 18–20 (M =3.35, SD =0.49) and 21+ (M =3.45, SD =0.50) did not differ significantly, t =-0.78, p =.432. English proficiency levels (A2, B1, and B2) also showed no significant differences, F =1.36, p =.259. Finally, no significant variance was found across departments, F =1.01, p =.438. Overall, these results indicate that demographic variables, including gender, age, English level, and department, do not have a statistically significant effect on attitudes toward AI in this sample.

Table 3

Correlation Results of AI and Learner Autonomy

		AI	Autonomy	AI_Communicative	AI_Behavioral	AI_Cognitive
AI	Pearson Correlation	1				

	Sig. (2-tailed)					
Autonomy	Pearson Correlation	.126	1			
	Sig. (2-tailed)	.174				
AI_Communicative	Pearson Correlation	.892*	.076	1		
	Sig. (2-tailed)	.000	.414			
AI_Behavioral	Pearson Correlation	.696*	.134	.442*	1	
	Sig. (2-tailed)	.000	.147	.000		
AI_Cognitive	Pearson Correlation	.862*	.127	.613*	.510*	1
	Sig. (2-tailed)	.000	.171	.000	.000	

**p < 0,01*

Table 3 illustrates the correlation between learner autonomy and AI. In order to analyse the significance of correlation, Cohen's (1992) correlation coefficient was utilized, indicating that the strength of correlation can be classified into different levels: small correlation ($.10 \leq r < .30$), medium correlation ($.30 \leq r < .50$), and strong correlation ($.50 \leq r < 1.00$). According to Table 3, there is no correlation between AI and Autonomy. However, there are significant positive correlations between AI and its subscales. Specifically, AI has a strong positive correlation with the Communicative subscale ($r = .892$, $p < .001$), a moderate positive correlation with the Behavioural subscale ($r = .696$, $p < .001$), and a strong positive correlation with the Cognitive subscale ($r = .862$, $p < .001$). Additionally, the Communicative subscale shows a moderate correlation with both the Behavioural ($r = .442$, $p < .001$) and Cognitive ($r = .613$, $p < .001$) subscales. The Behavioural subscale also has a moderate correlation with the Cognitive subscale ($r = .510$, $p < .001$). Overall, it can be said that according to the results, all relationships between AI and its subscales are positive, strong, and significant. Moreover, results suggested that an increase in AI, Communicative, Behavioural, and Cognitive areas also increase each other as well.

Table 4

Descriptive Results of AI and Autonomy

	M	SD

AI	3.37	0.49
Autonomy	3.71	0.34
AI_Communicative	3.35	0.55
AI_Behavioral	3.59	0.62
AI_Cognitive	3.26	0.60

Table 4 illustrates the descriptive statistics for AI, autonomy, and the subscales of AI. The mean score for attitudes toward AI was 3.37 (SD =0.49), indicating a moderate level of positive attitude toward AI. The mean score for learner autonomy was 3.71 (SD =0.34), suggesting that participants demonstrated a moderate to high level of learner autonomy. Among the AI subscales, the Communicative subscale had a mean score of 3.35 (SD =0.55), the Behavioural subscale had a mean score of 3.59 (SD =0.62), and the Cognitive subscale had a mean score of 3.26 (SD =0.60), indicating moderate levels of engagement across these dimensions.

Discussion & Conclusion

This study investigated preparatory students' perceptions of AI in language learning and their impact on learner autonomy. Descriptive results showed that participants had a moderately positive attitude towards AI. According to the results, participants appear open to using AI in language learning; for instance, growing acceptance and comfort with AI in language learning were observed. However, gender did not have an impact on learner autonomy, which is in line with Vo and Nguyen (2024). Results suggest that participants are not fully receptive to the idea of using AI without teacher support or guidance. This implies that they have reservations about AI's ability to fully replace human teachers. The results also indicate that AI tools have the potential to enhance learner autonomy and provide more personalized learning experiences. Also, results from AI suggest that participants are willing to take risks and attempt to use AI tools in their language learning process. Therefore, it can be inferred that AI could serve as a complementary tool in language education.

Regarding learner autonomy, participants demonstrated a moderate to high level of autonomy. This finding suggests that participants have some degree of independence and self-direction in their language learning journey, underscoring the potential to further foster and develop students' autonomy skills to enhance their language learning experiences and outcomes. Results and items support this finding. However, certain questionnaire items indicate that participants agree they

may lack skills in areas like self-assessment or voluntarily reading texts. Consequently, according to the results, it could be inferred that integrating self-assessment and motivation into the language learning process may help increase learner autonomy.

These findings have two implications for teachers, educators, and administrators. The first implication is the promotion of learner autonomy in curriculum design. Educators should focus on designing curricula that empower students to take greater responsibility for their learning. This could include offering more choices in activities, fostering self-assessment skills, and encouraging independent learning outside the classroom. The second implication is the potential for personalized learning through AI integration. The results suggest that students are receptive to AI's role in language learning, especially in creating a personalized and supportive environment. Teachers can leverage AI tools to provide tailored feedback, track progress, and adapt lessons to meet individual learners' needs.

However, this study has several limitations, such as a limited sample size and reliance on quantitative data. It is suggested that future studies incorporate interviews and observations alongside attitudes toward AI and learner autonomy to gain a deeper understanding of students' perceptions of these topics. Moreover, future studies should examine students' learner autonomy levels before and after utilizing AI in language learning. Additionally, expanding the sample to include students of different age groups, departments, and universities could help generalize the findings of this study.

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Ethical Declaration and Committee Approval

In this research, the principles of scientific research and publication ethics were followed. Necessary permission was obtained from the Abdullah Gül University Institutional Review Board in August 2024. The document number for the ethics committee approval is 101621. According to the IRB, the project has been deemed ethically appropriate.

Proportion of Authors' Contribution

Author 1: Conceptualization, Methodology, Data Collection and Analysis, Discussion and Conclusion, Writing – Original Draft.

Author 2: Conceptualization, Literature Review, Review & Editing, Last Draft, Discussion and Conclusion.