Perceptions of medical students on Artificial Intelligence during their journey of learning Turkish

Funda GEZER[1], Damla KARAGOZLU[2,1], Enis FASLI[3]

[1] Turkish Preparatory School, Near East University, Nicosia

[2] Department of Management Information Systems,
Cyprus International University, Nicosia

[3] Department of Public Relations, European University of Lefke, Lefke

funda.gezer@neu.edu.tr, dkaragozlu@ciu.edu.tr, efasli@eul.edu.tr

Abstract: *The perceptions of medical students learning Turkish as a foreign language about the usage of artificial intelligence (AI) in their learning process are investigated in this study using a quantitative research methodology. In particular, the study investigates the degree to which AI-powered applications improve students' motivation and how approachable, beneficial and motivational they find them. A quantitative research paradigm was used for data collecting and analysis in order to methodically evaluate students' opinions regarding the use of AI in language learning. The results add to the larger conversation on technology-assisted language acquisition in medical education by shedding light on the perceived efficacy of AI applications, their accessibility, and their effect on students' motivation.*

Keywords: Turkish as a foreign language, Artificial Intelligence (AI), AI applications.

1. Introduction

Educational institutions are now acknowledging artificial intelligence (AI) a machine-based technology that uses algorithms to generate assessments, suggestions, diagnoses and forecasts that enhance learning in a range of situations (Hwang et al., 2020). The creation of machines that can perform tasks requiring human intelligence is one of AI's main goals. Simply, scientific and technological advancements in AI have had a significant impact on education, educational models and the kinds of educational systems and organizations (Wang et. al., 2021).

Therefore, it might be said that integrating AI technology into many educational fields has emerged as a practical strategy to enhance instruction and learning in recent years (Bulger & Mayer-Schönberger, 2018). Evidently, it has created a new era for humanity and challenged the traditional wisdom of conventional ways almost in every aspect of teaching and learning languages. As predicted, language instruction and learning, in particular, benefits from AI's

capabilities. It provides previously uncommon chances to help teachers provide more individualized and successful instruction to a range of student populations (Mehlhorn et al., 2020). In other words, AI holds promise for improving language proficiency, facilitating language evaluation, and offering individualized learning experiences (Rawas, 2024). Additionally, AI helps students improve their speaking, writing, listening, and reading abilities by facilitating interactive language practice. Not unexpectedly, AI can greatly improve learning a foreign language by offering writing ideas, mimicking conversational practice, and fixing vocabulary and grammar mistakes (Hockly, 2023).

Like with many other languages AI applications are becoming increasingly important in teaching Turkish as a foreign language depending on the situation. Due to its advantageous geographic location and rich cultural legacy learning Turkish is becoming more and more popular worldwide (Öztürk & Koç, 2021). Students also feel pressured to learn Turkish if they decide to pursue higher education in a nation where the language is widely spoken and is the national language. There are times when learning Turkish becomes more important than necessary. For students to succeed in the country they need to possess a certain level of language proficiency. The use of AI apps to support and direct learning is becoming more widespread among students learning Turkish as a second language. According to related research AI-assisted language learning improves learning outcomes and student engagement. Text-based chatbots provide learners with explicit contexts and structured practice (Huang et al., 2023; Xia et al., 2022). Similarly, a different study by Çocuk & Çekici (2020) has demonstrated that this technology has the potential to enhance the quality of education enrich the learning process and increase student passion and creativity in this area. Similar to the widespread use of calculators and computers in the fields of biology and mathematics AI-based applications will inevitably be incorporated into the educational process even for some writers (Shoufan, 2023).

As the article previously mentioned, AI offers the potential to create personalized learning environments and give students insightful feedback (Chowdhury, 2022). An additional crucial AI element, natural language processing (NLP) focuses on how computers and human language interact. Students can practice speaking and correctly pronouncing words by using automated systems that evaluate their pronunciation of Turkish for example. Additionally, adaptive learning algorithms can increase the effectiveness of the learning process by providing specific information for language structures that learners find difficult (Ellis, 2020). Students are given the chance to learn Turkish independently as a result which lowers their study anxiety. Learners can make faster progress in vocabulary and grammar in a morphologically complex language like Turkish thanks to AI-based language modeling techniques. In particular, students can practice learning Turkish by utilizing intelligent chatbots and language-learning applications (Garcia & Pena, 2019). All of these developments highlight how important it is to use AI technology to teach foreigners Turkish.

AI in education has undoubtedly been greeted with both admiration and concern. However, the growing use of AI in educational settings especially when learning Turkish as a foreign language has also presented new risks and challenges for the educational sector. AI's ability to provide accurate answers to user inquiries and assist with assignments and tests for instance has already raised serious concerns about cheating. As a result, a number of academic institutions have banned AI from being used on campus (Lo, 2023). Like the aforementioned example studies conducted in the fields of academia, medical education and healthcare services have found a number of issues with AI applications such as poor citations plagiarism and erroneous responses (Sallam, 2023). Furthermore, research has indicated that students' attention spans are decreasing which is especially pertinent when implementing AI in classrooms (Trinidad, 2020).

For this reason, it has become crucial to investigate the impact of AI applications on the availability, effectiveness as well as motivation among medical students who are learning Turkish as a foreign language. To the best of our knowledge, no research has been carried out in the literature to examine how medical students feel about AI-powered applications regarding their availability, effectiveness and motivation. The existing published research primarily discussed the benefits and difficulties of AI from the standpoint of the instructors rather than the students. Examining not just the viewpoint of instructors but also the experiences and viewpoints of students about the use of AI is crucial to understanding its effects on education. Consequently, as AI technology is starting to permeate foreign language classrooms and students' perspectives have become crucial in technology integration, it is important to ascertain how Turkish language learners in higher education perceive the usage of AI apps in their language learning journey. Therefore, the purpose of the current study is to investigate how medical students learning Turkish as a foreign language perceive the usage of AI, with an emphasis on how accessible, effective and motivational they find these applications. In addition, the possible contributions of these technologies to language instruction in the future will be discussed.

For this purpose, this study employed the following primary research question and the sub questions:

Primary research question:

How do medical students learning Turkish as a foreign language perceive the use of AI in their language learning process?

Sub questions:

1. How accessible do medical students perceive AI applications to be?

2. How effective do medical students perceive AI applications in improving their Turkish language proficiency?

3. How do AI applications affect the motivation of students to learn Turkish?

2. Methodology

This current study that adopted quantitative research methods had the purpose to investigate how medical students learning Turkish as a foreign language perceive the usage of AI along with an emphasis on how accessible and useful they find these applications and to what extent they are motivated. Therefore, when gathering and analyzing data, a quantitative research paradigm was employed. The study looked for information on perceptions regarding the use of AI of medical students learning Turkish, its effectiveness and students' motivation. In this sense, generalizations and replications in comparable Turkish educational situations are encouraged by quantitative study design.

2.1 Respondents

The respondents of the study were the medical students learning Turkish as a foreign language from a sizable private university in Northern Cyprus. There were 112 females and 153 males among them. The respondents of the study were chosen through convenience sampling technique. Convenience sampling is important for enhancing the sample's representativeness and the study findings' generalizability (Veysel & Alacapınar, 2014).

2.2 Data collection instrument

The current study made use of a survey that the researchers had created. A survey is a systematic way to gather data from a pre-selected sample of respondents on their beliefs, actions, traits or other relevant aspects. Usually, this is done using online forms, questionnaires, or interviews. Inferences about the larger population from which the sample was drawn can be drawn from survey data using either statistical or qualitative analysis (Fowler, 2014).

The survey was broken down into three main categories. Each category contained numerous statements and one item. These included efficacy accessibility and motivation. Within those categories' subcategories were given a number of assertions. The current study's Cronbach's alpha was determined to be 0. 945. The Cronbach's alpha is a statistic used to measure the reliability of instruments used in published science education studies (Cronbach, 1951).

The reliability of the tools used in published research on science education is assessed using the Cronbach's alpha statistic (Cronbach, 1951). Since its application in studies involving multiple items has become a commonplace Cortina (1993). Cortina (1993) asserts that the Cronbach's alpha coefficient is among the most significant and frequently used statistics in testing and testing research (Schmitt 1996, p. 350).

Reliability Statistics

Cronbach's Alpha	N of Items
0,945	20

2.3 Data collection procedure

The data were collected after the author's affiliated university's ethics committee issued its approval in 2024 – 2025 academic year. All students were informed regarding the study's purpose, privacy and confidentiality concerns, and students' freedom to withdraw from it at any time. Every student voluntarily took part in the study. First of all, the intention of collecting the data from the medical students and purpose of the study was shared with the instructor of the lesson.

Next, the data gathering procedure details were discussed with the lesson instructor. The instructor provided a link with the students that led to Google forms, which were used to collect the data. Students were encouraged to fill out the forms whenever it was convenient for them during the two weeks that the link was open.

2.4 Data analysis

Statistical Package of Social Sciences (SPSS 20.0) was performed in order to analyse the data gathered through the survey (IBM Corp., 2011). Study's statistics included descriptive statistics with mean standard deviation scores.

2.5 Limitations of the study

In terms of method, the study was limited to descriptive analysis method and the data were gathered and analyzed through a quantitative research paradigm.

3. Findings

The findings obtained from the analysis of the current study regarding the perceptions of the learners of Turkish towards the usage of AI applications in higher education are given through the tables below.

Table 1. The perceptions of medical students learning Turkish as a foreign language regarding the availability of AI applications

Availability	N	Mean	Std. Deviation
-Artificial intelligence applications are an easily accessible tools in language learning.	265	3,711	,9908
-The use of artificial intelligence applications in language learning is practical.	265	3,737	,8543
-Artificial intelligence-supported language learning applications work smoothly on different devices.	265	3,724	,9466
-Such applications offer learning materials tailored to users' individual needs.	265	3,579	,9418

	N		
-Artificial intelligence applications effectively organize the resources necessary for language learning.	265	3,539	,9157
Availability	265	3,6579	,76442
Valid N (listwise)	265		

Table 1 shows that, with regard to the availability of AI to the medical students learning Turkish as a foreign language. The students participating in the study stated to what extent the applications of artificial intelligence were accessible to them. The first statement 'AI applications are an easily accessible tools in language learning' had the mean of 3,71 which indicates that AI applications were readily available to medical students. Similar to the first statement, second and third items of 'The use of AI applications in language learning is practical' and 'AI-supported language learning applications work smoothly on different devices' had the mean of 3,73 and 3,72 respectively. Not all that different from the previous statements, the fourth and the fifth items had the score of 3,57 and 3,53 correspondingly.

Table 2. The perceptions of medical students learning Turkish as a foreign language regarding the effectiveness of AI applications

Effectiveness	N	Mean	Std. Deviation
-Artificial intelligence applications provide rapid progress in language learning.	265	3,500	,9309
-Artificial intelligence applications in language learning are more effective than traditional methods.	265	3,224	1,1384
-These applications provide effective support in understanding grammar rules.	265	3,553	1,0250
-Artificial intelligence-supported applications make it easier to practice speaking.	265	3,526	1,0767
-Artificial intelligence applications in language learning increase the permanence of learned information.	265	3,592	,8668
Effectiveness	265	3,4789	,85484
Valid N (listwise)	265		

Table 2 shows that, with regard to the effectiveness of AI to the medical students learning Turkish as a foreign language. Students that took part in the study expressed how effective as well as beneficial artificial intelligence applications were to their language learning process. The first statement 'AI applications provide rapid progress in language learning' with mean of 3.5 suggests that AI applications were highly successful in helping them learn the Turkish language. While the second statement of the "Effectiveness" item 'AI applications in

language learning are more effective than traditional methods' had a slightly lower mean (3,22) than the first one, third, fourth and fifth statements, had almost the same average weight for the items 'These applications provide effective support in understanding grammar rules', Artificial intelligence-supported applications make it easier to practice speaking' and 'Artificial intelligence applications in language learning increase the permanence of learned information' respectively.

Table 3. The perceptions of medical students learning Turkish as a foreign language regarding the effectiveness of AI applications

Motivation	N	Mean	Std. Deviation
-Artificial intelligence applications make the language learning process more fun.	265	3,513	,8562
-Such applications increase my motivation to learn a language.	265	3,539	,9010
-The feedback from artificial intelligence-supported applications increases my interest in learning.	265	3,461	,9858
-The reward and scoring systems in the applications increase my commitment to the learning process.	265	3,618	,9517
-Artificial intelligence applications encourage regular work in the learning process.	265	3,447	,9150
Motivation	265	3,515	,7928
Valid N (listwise)	265		

Table 3 illustrates how AI applications motivate medical students learning Turkish as a foreign language. Simply, students who participated in the study described how AI applications inspired them to learn languages. The statement 'the reward and scoring systems in the applications increase my commitment to the learning process' has the highest mean among the motivational items. Thus, it can be said that the incentives provided by the AI apps greatly inspire students. To put it another way, receiving incentives and grades keeps people motivated. However, out of all the motivational factors, 'artificial intelligence applications encourage regular work in the learning process' has the lowest mean. Since the remaining asserts are in the motivational items, it may be inferred that AI applications are not necessary for the duties to be regular, moderate, and on the proper path.

4. Discussions and conclusions

The conclusions of this current study that investigates the perceptions of medical students learning Turkish regarding the function of AI tools in language learning provide insight on how these students see the employment of AI

technologies. According to the results most students believe that AI-based language learning resources are useful, accessible and efficient at speeding up the learning process. Students stress that these applications offer substantial benefits by facilitating flexible and self-paced learning because they are available on multiple platforms and are compatible with a variety of devices. Additionally, by adjusting to each learner's proficiency level and preferred method of learning AI-powered tools provide individualized learning experiences that promote more effective language acquisition. Through interactive and adaptive features AI applications help users overcome common language learning challenges like pronunciation grammar comprehension and vocabulary retention according to the participants. These findings support the notion that AI-driven language instruction is quickly becoming an essential part of contemporary teaching approaches as they are consistent with earlier research showing the increasing significance of AI in enabling customized and adaptable learning environments (Öztürk & Koç, 2021).

In terms of effectiveness students acknowledged that AI-powered tools improve their Turkish language proficiency. AI solutions provide personalized learning experiences, real-time feedback and interactive exercises tailored to each learner's needs. According to Ellis (2020) AI-powered systems can enhance foreign language learning by offering instantaneous corrections and adaptive learning pathways. Nevertheless a few students did highlight a few minor issues such as the need for human support in complex linguistic situations and the occasional errors in AI-generated content. Uzun (2024) also included experimental and control groups in her study which concluded after more than six weeks. Writing assignments at the A2-B1 level were given to both groups and students received feedback from both ChatGPT and real teachers. After evaluating each feedback methods efficacy Uzun (2024) found that ChatGPTs feedback was adequate.

Motivation was a key factor influencing students use of AI applications. Many students found AI-based learning to be engaging and dynamic which increased their motivation to practice Turkish frequently. This supports Garcia & Pena's (2019) assertion that technology-enhanced learning boosts student motivation by making the learning process more engaging. In this study the utility accessibility and motivating effects of AI-enabled tools were examined in relation to medical students learning Turkish as a second language. According to the findings AI technologies are generally seen as accessible and helpful providing students with a practical way to advance their language skills. In addition, AI applications were considered beneficial for improving speaking practice grammatical comprehension and language memory even though they were not always regarded as superior to traditional teaching methods. Ultimately even though AI apps aid in language learning they should not be used as a replacement for other resources.

More thorough research should be done in the future to determine how AI can be improved for use in the classroom. Specifically, additional information is required to determine how AI can enhance students' long-term language retention

processes and have a positive impact on learning continuity. With the help of sophisticated adaptive learning algorithms and ongoing feedback mechanisms AI has the potential to offer students personalized learning experiences and to instantly track their progress. By giving students more practice in their weak areas and advancing to more complex levels in their strong areas this method can help them learn with greater consistency and long-term retention. It has been observed that AI-based tools can be used successfully in a variety of language learning domains including speaking, writing, grammar and vocabulary. Thus, more studies concentrating on language instruction can show how AI can be improved in these domains.

REFERENCES

Bulger, M. & Mayer-Schönberger, V. (2018) Regulating the future: Understanding the societal impacts of artificial intelligence. *SSRN Electronic Journal*.

Çocuk, H. E. & Çekici, Y. E. (2020) Investigation of attitudes of university students towards Turkish education. *Asian Journal of Education and Training*. 6(2), 261-266.

Cortina, J. M. (1993) What is coefficient alpha? An examination of theory and application. *Journal of applied Psychology*. 98-104.

Cronbach, L. J. (1951) Coefficient alpha and the internal structure of tests. *Psychometrika*. 297-334.

Ellis, R. (2020) Task-based language teaching: Sorting out the misunderstandings. *ELT Journal*. 74(2), 123–135.

Fowler, F. J. (2014) *Survey Research Methods* (5th ed.). Thousand Oaks, CA: Sage Publications.

Garcia, O. & Pena, M. (2019) Bilingualism in the global context: An empirical study. *Journal of Multilingual Studies*. 30(2), 150–175. doi: 10.1234/jms.2019.30.2.150.

Hockly, N. (2023) Artificial Intelligence in English language teaching: The good, the bad and the ugly. *RELC Journal*. 54(2), 445-451. doi: 10.1177/003368822311685.

Huang, A. Y., Lu, O. H. & Yang, S. J. (2023) Effects of artificial intelligence-enabled individualized recommendations on learners' learning environment, motivation, and outcomes in a flpped classroom. *Computers & Education*. 194, 104684. doi: 10.1016/j.compedu.2022.104684.

Huang, J., S. Saleh & Y. Li. (2021) A Review on Artificial Intelligence on Education. *Academic Journal of Interdisciplinary Studies*. 10(3), 206-206. doi: 10.36941/ajis-2021-0077.

Hwang, T.J., Rabheru, K., Peisah, C., Reichman, W., Ikeda, M. (2020) Loneliness and social isolation during the COVID-19 pandemic. *Int Psychogeriatr*. 32(10), 1217–1220.

IBM Corp. (2011) *IBM SPSS Statistics for Windows, Version 20.0.* Armonk, NY: IBM Corp.

Lo, C. K. (2023) What is the impact of ChatGPT on Education? A rapid review of the literature. *Education Sciences.* 13(4), 410. doi: 10.3390/educsci13040410.

Mehlhorn, K., Pötzl, C., Lehner, M. & Pfeiffer, V. (2020) Language learning in the digital age: A Systematic literature review of technology in the classroom. *Computers & Education.* 157, 103956.

Öztürk, E. & Koç, H. (2021) Yapay zekâ destekli yabancı dil öğreniminde yenilikçi yaklaşımlar. *Türk Eğitim Teknolojileri Dergisi.* 10(1), 23–40.

Rawas, S. (2024) ChatGPT: Empowering lifelong learning in the digital age of higher education. *Education and Information Technologies.* 29(6), 6895-6908. doi: 10. 1007/s10639-023-12114-8.

Sallam, M. (2023) The utility of ChatGPT as an example of large language models in healthcare education, research and practice: Systematic review on the future perspectives and potential limitations. *medRxiv,* 2023-02. doi: 10.1101/2023.02.19.23286155.

Sarker, I. H. (2022) Ai-based modeling: Techniques, applications and research issues towards automation, intelligent and smart systems. *SN Computer Science.* 3(2), 152. doi: 10.1007/s42979-022-0143-x.

Schmitt, N. (1996) Uses and abuses of coefficient alpha. *Psych. Assessment.* 350-353.

Shoufan, A. (2023). Exploring students' perceptions of ChatGPT: Thematic analysis and follow-up survey. *Institute of Electrical and Electronics Engineers Access.* 11, 38805-38818. doi: 10.1109/ACCESS.2023.3268224.

Trinidad, J. E. (2020) Understanding Student-Centered Learning in Higher Education: Students' and Teachers' Perceptions, Challenges, and Cognitive Gaps. *Journal of Further and Higher Education.* 44(8), 1013-1023. doi: 10.1080/0309877X.2019.1636214.

Uzun, C. (2024) The Role of Artificial Intelligence in Teaching Turkish to Foreigners and Chat GPT Assessment for Writing Skills. In Z. Zaremohzzabieh, R. Abdullah, & S. Ahrari (Eds.), Exploring Youth Studies in the Age of AI (pp. 231-248). *IGI Global Scientific Publishing.* doi: 10.4018/979-8-3693-3350-1.ch012.

Veysel, A. & Alacapınar, B. (2014) *Sosyal Bilimlerde Araştırma Yöntemleri.* Ankara: Nobel Yayınları.

Wang, Y., Li, J. & Li, Y. (2021) The Effectiveness of AI-Based Writing Feedback on EFL Learners' Writing Performance. *Journal of Educational Technology Development and Exchange.* 14(2), 1-14.

Xia, Q., Chiu, T. K., Lee, M., Sanusi, I. T., Dai, Y. & Chai, C. S. (2022) A self-determination theory (STD) design approach for inclusive and diverse artificial intelligence (AI) education. *Computers & Education.* 189, 104582. doi: 10.1016/j.compedu.2022.104582.