
The Role of Artificial Intelligence in Teaching Literature in School Classroom

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doi.org/10.51505/ijaemr.2025.1110

URL: <http://dx.doi.org/10.51505/ijaemr.2025.1110>

Received: Mar 04, 2025

Accepted: Mar 11, 2025

Online Published: Apr 05, 2025

Abstract

The particular research concerns the role of Artificial Intelligence in the teaching of philological lessons in the classroom. Based on perceptual computing technology, technical intelligence is able to respond to the diverse needs of students, offering personalized services in a modern learning context, thus reshaping the educational context. However, its integration into the classroom requires technical expertise and dealing with both limited resources and ethical issues arising from its implementation. The purpose of the specific study is the analysis of the multifaceted role of artificial intelligence in the teaching of philological subjects in the classrooms of Middle and High Schools in Greece. Regarding the results, in this specific quantitative research, the Analysis of Variance (One Way ANOVA) and 2 Regression Analyzes were used to prove that the use of AI in the teaching of philological courses has a positive effect on the quality of teaching as well as on social and school life of students. The conclusions can be used in future research aiming at the further investigation of AI in the teaching of philology courses in Secondary Education.

Keywords: AI, Secondary Education, Philologist Teachers, School

1. Introduction

1.1 Research Background

Based on the integration of Artificial Intelligence (AI) technologies into the learning sciences, Artificial Intelligence in Education (AIED) includes the application of AI technologies in education, the development of educational frameworks, as well as the restructuring of important educational elements or processes (Schiff, 2021). According to perceptual computer technology, AI allows the perceptual functioning of learning environments to respond to the different needs of students and offer personalized services in a modern learning context, reshaping the educational context (Wnag et al., 2024).

Integrating artificial intelligence into the teaching of literature courses in middle and high school classrooms has the potential to revolutionize the way not only for students to learn but also for teachers to teach today. Artificial intelligence algorithms can provide students with personalized feedback, advice, and recommendations, promoting a more modern, engaging, and effective learning experience (Chen et al., 2020). Despite the potential benefits, there are several challenges facing the integration of artificial intelligence into the classroom, including the need for technical expertise, limited resources, and ethical issues arising from the application of AI. To ensure fair and inclusive learning experiences, ethical principles like fairness, justice, inclusion, and accessibility must serve as guiding factors. Likewise, explainability and transparency are crucial in the implementation of ethical AI. Being transparent about AI usage fosters trust and accountability among educators, students, and stakeholders, allowing them to better understand how AI operates (Walter, 2024).

AI includes the creative (rather than mechanistic) adoption of new teaching models and modern learning approaches, which are based on research data from both Neuroscience and Cognitive Psychology, emphasizing the basic principles and the utilization of strategies of investigative historical learning that concern, for example, problem solving, the cultivation of research skills, interdisciplinary as well as differentiated teaching through participation in learning communities. With AI tools now available, history teachers have more opportunities than ever to take students on a journey into the past. By leveraging these technologies, they can create interactive and personalized lessons that inspire students to explore history in new ways (Theodorou, 2024). Modern tools include custom web platforms, such as *Humy*, which enables teachers to create personalized AI-powered interactive chatbots that replicate the unique voices, personalities, and perspectives of these figures, creating an immersive experience for students.

Today, teachers can use *ChatGPT*, *Claude*, *Copilot*, *Bard/Gemini*, concept maps, as well as tools for text creation, translation, text summarization, speech production, images and even videos, providing relevant supporting material to their students for their better preparation. *GotFeedback* allows teachers to upload historical content, such as timelines, maps, and materials (multiple choice questions, essays) for students to comment on and discuss, while *ClassPoint AI* offers a

comprehensive collection of historical resources, including a variety of automated quizzes, plagiarism detection tools, and analytics dashboards (Ganapathiraju & Kumar, 2024).

Teaching philosophy in middle and high school can help students cultivate creativity and innovation skills by teaching them how to think outside the box and challenge conventional thinking. Teaching Philosophy through AI helps students develop the ability to find innovative solutions to complex problems. For example, teaching philosophical concepts, such as creativity, imagination, and innovation assists students in thinking more imaginatively and constructively about the use of technology and its potential to solve global challenges (GanapathiRaju & Kumar, 2024).

Literature teaching provides a window into the study of different cultures, historical contexts, and diverse human experiences. It encourages critical thinking by analyzing complex narratives and characters, and promotes empathy by allowing readers to see the world from different perspectives (Wang, 2024). Applying AI to literature lessons in school also means cultural exchange, as it can facilitate the promotion of intercultural understanding and appreciation. AI can enhance teachers' educational work by identifying and analyzing the strengths and weaknesses of individual students, offering the necessary solutions that match their specific needs (Sameera, 2023).

However, its implementation should be guided by ethical considerations and complement rather than replace traditional teaching methods. The future of teaching literature in the classroom may be based on a hybrid model, where artificial intelligence will enhance the role of educators and enable students to engage with literature in modern and innovative educational ways. Augmented Reality (AR) and Virtual Reality (VR) technologies ameliorate multisensory learning, which combines a variety of different learning experiences, such as visual or auditory stimulation, and help children develop deeper views of the world, become emotionally and intellectually motivated, and further cultivate their verbal and written skills (Bekas & Xinogalos, 2024; Al-Ansi et al., 2023).

The evolution of learning environments has been enormous in recent years in the areas of mobile, blended learning and telecommunications technologies. Many high school subjects, such as History, Ancient Greek and Latin, use virtual reality tools to recreate historical and natural sites, or "take" students to historical places they have never seen before (Mayor, 2018). Mobile devices and technologies are evolving at a frenetic pace, enhancing our access to every part of the world around us. Virtual reality is among those technologies that are thriving today, causing a paradigm shift in the field of human-machine interaction (Chintiadis et al., 2018; Merchant et al., 2014; Ross, 2023). AI contributes to the participation of students with specific learning disabilities in learning activities that were not previously practical or feasible. AI animation tools have the potential to be particularly useful for students with disabilities, including accessibility features and animation creation specifically tailored to their needs. By personalizing lessons for each student and encouraging greater participation on their part, AI has the potential to improve the lives, careers, and work environments of teachers (Kumar et al., 2023; Rapti, 2023).

However, while many teachers use AI tools in their daily lives, most are uncertain about their positive use or see drawbacks to the general use of AI tools in education, according to a Pew Research Center survey conducted in the fall of 2023. The use of AI in the classroom acts as a threat to teacher job security, because the development and adoption of AI causes professional stress, anxiety, and uncertainty (Lin, 2024; Kim & Kim, 2022). In light of this, the new concept of AIED is introduced and includes all aspects of educational uses of AI (Hrastinski et al., 2019). It is essential to pinpoint that before teachers decide to adopt AI in the classroom, they should first learn how to use the technology and, most importantly, how to successfully integrate it into their curricula. In an era where AI technology is increasingly penetrating various aspects of life, including education, it is important to understand its impact on students' social relationships, too (Jiang and Yoo, 2024). Due to the increased time that young people spend in front of screens, they are likely to develop a dependence on digital platforms, which gradually leads them to experience various physical and mental effects, such as the development of biased behavior, social isolation, depression, anxiety, obesity, migraines, eyestrain, poor posture, and insomnia (Holmes & Tuomi, 2022; Xie et al., 2022).

The purpose of this specific research is to analyze the multifaceted role of artificial intelligence in the teaching of literature courses in middle and high school classrooms in Greece. In addition, emphasis will be placed on the evaluation and assessment of the impacts of artificial intelligence in improving the quality of the course in secondary schools as well as the school and social life of students. To the best of authors' knowledge, no previous research in Greece has investigated this particular topic.

1.2 Rationale

The specific research could provide valuable insights into the intersection of technology and traditional teaching methods, shedding light on how AI can help modernize literature education and improve outcomes for students in both academic and social contexts. In this way, technology can support students' comprehension, critical thinking, and literary analysis, while also fostering creativity and collaboration.

1.3 Objectives and Significance

The primary objectives of this particular research are: a) to assess and analyze of Artificial Intelligence in the teaching of literature in middle and high school classrooms, b) to examine the impact of AI on students' social lives and academic performance and c) to provide recommendations for the effective integration of AI into the literature curriculum. The significance of this research lies in its potential to lead to enhanced teaching practices, better student outcomes, and a more balanced approach to incorporating AI into the classroom.

1.4 Hypothesis for the study

The study hypothesizes that AI could contribute positively to improving the quality of philological courses in middle and high school classrooms. Specifically, the integration of AI

might significantly improve comprehension and analysis of literary texts, offer more collaborative and interactive learning experiences and enhance both students' academic performance and social engagement.

1.5 Research Questions

The following research questions are concentrated on exploring the role of Artificial Intelligence in Teaching Literature in the School Classroom. The research questions that arise are related as follows:

- a) whether the philology teachers, who participated in the research, are familiar with the technology and ready to accept the use of AI
- b) whether AI would help teachers improve the quality of teaching of philological subjects
- c) if AI could have an impact on affect student performance, school and social life of students

2. Method

2.1 Ethical considerations

The study was carried out in accordance with the standards of conduct and ethics of School of Philosophy of the National and Kapodistrian University of Athens (NKUA) in Greece.

2.2 Study design

This specific research concerns the conduct of a quantitative research, where the variables were categorical, nominal and numerical (nominal, ordinal and scale) and included the study of the participating philologists. The researchers used statistical analysis of frequencies, 2 Analyses of Variance (OneWay ANOVA) as well as 2 Regression Analysis to critically examine the relationship between the independent variables and the dependent variables, in order to correctly interpret and analyze the correlations that would arise. The independent variables were demographic data, the use of artificial intelligence by students and the use of artificial intelligence in teaching, while the improvement of the quality of the lesson and the school and social life are the dependent variables. For the purposes of this research, the statistical analysis package SPSS Statistics 28 was used.

Therefore, the criterion variables are defined as the use of artificial intelligence by students and the use of artificial intelligence in teaching, while the predictor variables are demographic data, the use of artificial intelligence by students and the use of artificial intelligence in teaching.

2.3 Study settings

A structured electronic questionnaire based on closed-ended questions was used and posted online to be answered anonymously by philology teachers in groups for philologists on social networking platforms on the Internet. The demographic data collected concerned gender, age,

place of residence, marital status, level of education, years of teaching experience, employment, classes taught and subject taught (Yusuf & Swanson, 2010).

2.4 Participant characteristics

The sample size of the participants who took part in this research was 300 (n=300). In this study, which took place during June and July 2024, the philology teachers who participated were men and women aged 21 and over. Based on the sample taken, female participants (n=259) (86.3%) were more in comparison to male participants (n=41) (13.7%). The present sample of participants was divided into 4 age groups: 25-35 years old (n= 87) (29.0%), 36-45 years old (n= 117) (39.0%), 46-55 years old (n=72) (24.0%) and over 55 years old (n=24) (8.0%).

2.5 Statistical analysis

The examination of the research objectives of the thesis was carried out through 2 One-way ANOVA (Analysis of Variance by One Factor) and 2 Regression Analysis (Regression Analyses) in order to accurately determine the correlations that emerged and their interpretation. Regarding the reliability and validity of the statistics, the internal consistency coefficient Cronbach's Alpha was 0.813.

The First Regression Analysis was applied aiming to study the influence of the use of AI by teachers and students, which affects the improvement of the quality of the course in Secondary Education schools. The Second Regression Analysis examines the possibility of the use of AI in teaching and the use of artificial intelligence by students to have an impact on the school and social life of students in middle and high schools.

All hypotheses were thoroughly tested. Frequencies and descriptive analysis were performed correctly. The result is statistically significant since the p-value is less than 5% ($p < 0.05$). The analysis was performed using the SPSS Statistical Package for Windows (version 28.0) (Wendt et al., 2023).

3. Results

The internal consistency and reliability coefficient Cronbach's Alpha was 0.813 (Amirrudin et al., 2021). At first, in the 1st Regression Analysis, which took place with the aim of analyzing the relationship between the use of artificial intelligence by students and the use of artificial intelligence in teaching (independent variables), a One-Way ANOVA was carried out. In the ANOVA table we observed that the statistical significance approached 0 (sig. \approx 0=0.008) i.e. sig.<0.05, which meant that the model was statistically significant and had the ability to explain a part of the dependent variable.

Table 1: Anova analysis assessed the relationship between quality class improvement, and use of AI in teaching and from students

ANOVA^a						
Model		Sum of Squares	df	Mean Squares	F	Significance
1	Regression	10,770	2	5,385	1,183	0,008 ^b
	Residuals	11351,576	297	4,551		
	Total	1362,347	299			
a. Dependent Variable: Quality Class Improvement						
b. Predictor: (Constant): Use of AI from students, Use AI in Teaching						

In the above table, the multicollinearity condition was valid, a condition for a correct and comprehensive regression analysis, since all correlations between the independent variables (Pearson correlations) were less than 0.8 (<0.8). We also observed that the statistical significance (p value) in all correlations was $p < 0.05$ with correlation rates of the independent variables with the dependent $r_1 = 0.278$ and $r_2 = 0.336$ respectively. Therefore, the investigation between the variables was very good.

Table 2: The correlation between quality class improvement and AI use in teaching and from students

Correlations				
	Quality Class Improvement	Use AI in Teaching	Use AI from Students	
Pearson Correlations	Quality Class Improvement	1,000	0,278	0,336
	Use AI in Teaching	0,278	1,000	0,071
	Use AI from Students	0,336	0,071	1,000
Statistical Significance	Quality Class Improvement	.	0,048	0,016
	Use AI in Teaching	0,048	.	0,109
	Use AI from Students	0,016	0,109	.
N	Quality Class Improvement	300	300	300
	Use AI in Teaching	300	300	300
	Use AI from Students	300	300	300

Regarding the Durbin-Watson criterion, which was a condition of normality and autocorrelation of errors, the value was close to 2 (1.806). The variance of the dependent variable explained by the model is 49.1% since the adjusted R Square is 0.491. Consequently, the research met the conditions for statistical analysis.

The 2nd Regression Analysis carried out with the aim of analyzing the relationship between the independent variables of the use of artificial intelligence by students and the use of artificial intelligence in teaching, with the dependent variable of the school and social life of students

(dependent variable). In the ANOVA table we observed that the statistical significance approached 0 (sig. \approx 0=0.019) i.e. sig.<0.05, which meant that the model was statistically significant and had the ability to explain a part of the dependent variable.

Table 3: Anova analysis to assessed the relationship between school/social students' life and the use of AI in teaching and from students

ANOVA^a						
Model		Sum of Squares	df	Mean Squares	F	Significance
1	Regression	22,775	2	11,388	2,144	0,019 ^b
	Residuals	1577,171	297	5,310		
	Total	1599,947	299			
a. Dependent Variable: School and Social Life of Students						
b. Predictor: (Constant): Use of AI from Students, Use AI in Teaching						

The multicollinearity condition in Pearson correlations based on the correlation coefficients occurring between the independent variables must not be >0.8. According to the table below, the statistical significance (p value) in all correlations was p<0.05) with correlation rates of the independent variables with the dependent $r_1=0.119$ and $r_2=0.519$ respectively. Therefore, the investigation between the variables was very good.

Table 4: The correlation between school/social students' life and use of AI in teaching and from students

Correlations					
		Quality Improvement	Class	Use AI in Teaching	Use AI from Students
Pearson Correlations	School and Social Life of Students	1,000		0,119	0,519
	Use AI in Teaching	0,119		1,000	0,071
	Use AI from Students	0,519		0,071	1,000
Statistical Significance	School and Social Life of Students	.		0,039	0,019
	Use AI in Teaching	0,039		.	0,109
	Use AI from Students	0,019		0,109	.
N	School and Social Life of Students	300		300	300
	Use AI in Teaching	300		300	300
	Use AI from Students	300		300	300

Regarding the study and examination of the data resulting from the analysis of the use of AI in Secondary Education schools through the electronic questionnaires answered by the participants, it was particularly striking that in a total sample of 300 educational philologists, the use of artificial intelligence had been adopted by only 114 philologists (38.0%) (men n=19, women

n=95), while 186 philologists (62.0%) (men n=22, women n=164) stated that they did not use it in the classroom.

Table 5: Usage of AI

Usage of AI		Frequency	%	Valid %	Cumulative %
Valid	No	186	62,0	62,0	62,0
	Yes	114	38,0	38,0	100,0
	Total	300	100,0	100,0	

From the 25–35-year-old age group (n=87) only 33 philologists (n=33) used artificial intelligence, in the 36–45-year-old age group (n=117) 40 philologists (n=40) used AI, in the 46–55-year-old age group (n=72) 30 philologists and in the over 55-year-old age group (n=24) 11 philologists used AI in their teaching.

Regarding the views of philologists on the use of AI in the lesson and its impacts, we observe that 68.5% (n=205) believed that it improves the quality of the lesson and 60.7% (n=182) considered that it had a positive impact on student performance. Also, 93.0% of the philologists surveyed (n=279) recognized the need for guidance on the use of AI in school teaching, while regarding the methods of training in AI, philologists were in favor of training seminars/workshops by 64.3% (n=193), specialized online courses by 23.3% (n=70), appropriate educational materials by 8.3% (n=25) and university education by 4.0% (n=12). In every age group, the use of guidance was considered essential, with teachers over 55 years old responding positively at 100%. However, 58.7% of the philologists surveyed (n=176) out of a total of 300 participants believe that the use of AI undermined the role of the educator.

Table 6. Undermining the role of Educators

Undermine Educators' Role		Frequency	%	Valid %	Cumulative %
Valid	No	124	41,3	41,3	41,3
	Yes	176	58,7	58,7	100,0
	Total	300	100,0	100,0	

Also, 57.3 (n=172) pointed out that it reinforces inequalities and discrimination in the school environment, 89.3% of philologists (n=268) believed that it is an obstacle to the cultivation of critical thinking in students, while 75.3% of teachers (n=226) believed that it contributed to the increase in copying and plagiarism.

4. Discussion

This specific scientific research highlights the significant impact of the role of AI in the teaching of literature courses in Secondary Education. According to the First Regression Analysis, the usage of AI in teaching literature courses tended to have a positive effect on improving the quality of literature courses delivered within the classroom in middle and high schools (Ganapathiraju & Kumar, 2024).

Based on the Second Regression Analysis, the use of AI by students both in school environment and in their daily lives was predicted to positively affect the quality of their school and social life by 0.395 units. AI, as an educational ally, could be a useful tool for brainstorming and personalizing learning, creating an exciting experience that would be tailored to the educational needs and learning style of students, so as to strengthen their engagement and student motivation. Apropos the results of this study, philologists believe that artificial intelligence could contribute positively to improving teaching, enhancing the efficiency and quality of their courses. This study highlighted that a very large percentage (93.0%) of philologists need guidance for preparing and implementing lessons using AI, since their familiarity with artificial intelligence is minimal and the teaching challenges in the classroom every day are many. Furthermore, their fear that they would not be able to manage the use of a tool with infinite possibilities on their own without a framework of limits for its use, so as not to make them insecure and inadequate when applying it to the delivery of the course (Moorhouse, 2024).

Another important finding is that in every age group the use of guidance is considered necessary, as philologists over 55 years old answered affirmatively (100%). A large number of teachers (64.3%) would prefer to take part in training seminars or workshops, and specialized online courses in order to enhance their education about integrating AI into their pedagogical practices (Tammets & Ley, 2023).

Secondary school literature teachers believe that the impact of AI on students' school and social lives would be very significant. However, based on the results of this study, philologists argue that the use of artificial intelligence has a negative impact on the cultivation of students' critical thinking skills, the creation of social interactions and emotional development, as it reinforces dependence and possibly reduces interaction in the learning process (Zhai et al., 2024).

On the other hand, almost half of the teachers surveyed responded that they do not consider that children would be exposed to misleading or harmful content. The largest percentage of philologists does not believe that children's personal data is at risk due to the use of AI during the lesson. Also striking is the finding that many philologists do not consider that there is the possibility of personal content exploitation while using AI tools based, or increase in incidents of cyberbullying and excessive use.

Apropos the limitations of the present research, it should be mentioned that the time given to participants to respond was quite restricted (June-July 2024), given the fact that most philologists

were away on summer vacation and were not much connected with social networking platforms. Furthermore, although the researchers attempted to ensure, if possible, the same number of respondents to avoid gender effects and biased evaluation of the results, female participants (86.3%) were more numerous than male participants (13.7%). Consequently, it is necessary for future researchers to seek balanced representation of both genders regarding the composition and sampling design.

Regarding the improvement of the quality of the lesson and the performance of students, philology teachers pointed out the positive impact of TN in the classrooms, as it would effectively contribute to the teaching process. They believe that it helps provide personalized learning experiences, promote the training of teachers, facilitate vulnerable groups of students and also assist in the early diagnosis of learning difficulties (UNESCO, 2024).

Nevertheless, the use of AI in teaching as well as in student life could lead to the undermining of educators' role, the strengthening of inequalities and discrimination, and the encouragement of copying and plagiarism, since it constitutes a serious obstacle to the development of critical thinking (Zhai et al., 2024).

5. Conclusions

This specific research aimed to investigate the role of artificial intelligence in the teaching of literature courses in the middle and high school classroom. The improvement of the quality of the course is influenced by the use of AI in teaching, while the school and social life of students are influenced by the use of AI by the students themselves. The results obtained can be utilized by the scientific community and used in future research that would aim to further investigate the role of AI in the teaching of literature courses in school.

The continuous need for scientific research on the role of AI in teaching of literature courses is of crucial importance to evaluate the long-term impacts of GenAI tools on learning and knowledge to enable their efficient and ethical use in Secondary Education.

Data Availability Statement: The datasets used and analyzed in the current study are available from the corresponding author upon reasonable request.

Funding: This research received no external funding

Conflicts of Interest: The authors declare no conflict of interest

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