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ATTITUDES AND PROFESSIONAL READINESS OF PHILOLOGISTS TOWARDS GENERATIVE ARTIFICIAL INTELLIGENCE IN DIFFERENTIATED INSTRUCTION: EVIDENCE FROM GREEK SECONDARY EDUCATION

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Abstract

This study investigates the attitudes, perceptions, and level of professional readiness of Philologists in secondary education—language and humanities teachers within the Greek educational system—regarding the use of Generative Artificial Intelligence in differentiated instruction. The study was based on a quantitative, cross-sectional survey involving 90 Philologists, conducted through an online questionnaire. It examined teachers' familiarity with AI tools, their perceived pedagogical value, barriers to implementation, training needs, and the relationship of these factors with teachers' professional characteristics. The findings indicate that participants acknowledge the potential of AI to simplify texts, adapt teaching materials, and support differentiation. However, a mature practice of integrating these tools into classroom teaching has not yet been established. At the same time, participants express reservations regarding content validity, students' critical thinking, and the need for pedagogical oversight. Overall, the study highlights the need for targeted teacher training and institutional guidance.

Keywords: generative artificial intelligence, differentiated instruction, philologists, Greece

INTRODUCTION

In education, the rapid development of Artificial Intelligence and the wider process of digital transformation are increasingly affecting the conditions of teaching and learning. Within this context, differentiated instruction becomes particularly relevant, as teachers are expected to respond to the heterogeneity of the classroom and support students with different needs, learning paces, and levels of linguistic proficiency. For Philologists in Greek secondary education, namely teachers of language, literature, history, and related humanities subjects, this challenge is especially complex, since these subjects rely on demanding processes of comprehension, interpretation, and written and oral expression.

The emergence of Generative Artificial Intelligence introduces new possibilities for supporting differentiated instruction, including text simplification, the production of alternative versions of teaching materials, the design of graded activities, and the provision of preliminary feedback. However, the educational use of these tools cannot be considered self-evident. Teachers are required to address issues concerning the validity of generated content, the limits of technological support, the protection of academic integrity, and the preservation of students' critical engagement with texts.

Despite the growing interest in Artificial Intelligence in education, empirical research remains limited on how Philologists themselves perceive its use in differentiated instruction. It is particularly necessary to examine not only their degree of familiarity with new tools, but also teachers' attitudes towards their pedagogical value, the barriers they identify, and the training needs they consider essential for their meaningful use. On this basis, the present study seeks to investigate the attitudes and professional readiness of Philologists in secondary education towards Generative Artificial

Intelligence, and to identify the conditions associated with its pedagogically responsible integration into differentiated instruction.

Theoretical Framework

The present study is grounded in three main theoretical axes: differentiated instruction, the TPACK model, and digital literacy in Artificial Intelligence. Differentiated instruction is approached as a pedagogical response to learning heterogeneity, since it involves adaptations in content, learning process, and learning products according to students' readiness, interests, and learning profiles (Tomlinson, 2017). In language and humanities subjects taught by Philologists in the Greek secondary education system, this approach is particularly relevant, as comprehension, interpretation, and the production of written and oral discourse require different levels of cognitive and linguistic support.

The second theoretical axis is the TPACK model (Technological Pedagogical Content Knowledge), which describes the type of knowledge teachers need in order to integrate technology in a pedagogically and subject-matter-informed way. According to Mishra and Koehler (2006), the effective use of technology is not equivalent to technical familiarity, but depends on the dynamic interconnection of technological, pedagogical, and content knowledge. For Philologists, this means that the use of Generative Artificial Intelligence tools has instructional value only when it serves specific objectives, such as simplifying complex texts, producing graded activities, supporting reading comprehension, and providing guided support for written and oral expression (Mishra & Koehler, 2006).

The third theoretical axis concerns digital literacy in Artificial Intelligence. The relevant literature conceptualizes AI literacy as a complex capacity to understand, use, evaluate, and ethically manage AI systems (Ng et al., 2021). For teachers, this capacity is not limited to the functional use of tools, but also includes the critical assessment of their validity, limitations, and risks. In the same vein, UNESCO proposes a human-centred competency framework for teachers, which links AI with pedagogical judgement, professional responsibility, ethics, and continuous professional development (UNESCO, 2024).

Within this framework, Generative Artificial Intelligence may be viewed as a potential tool for supporting differentiated instruction, as it offers possibilities for producing adapted materials, alternative formulations, summaries of complex texts, and feedback. However, the literature stresses that these possibilities are accompanied by serious concerns, including inaccuracies in generated content, the opacity of models, risks to academic integrity, and the need to maintain human oversight (Kasneci et al., 2023; UNESCO, 2023). Therefore, the use of AI in the language and humanities classroom cannot be understood as an automated replacement of teaching practice, but rather as a tool that requires pedagogical judgement, scholarly scrutiny, and ethical awareness.

Overall, the present study approaches the use of Generative Artificial Intelligence in the language and humanities classroom as the intersection of three fields: differentiated instruction as a pedagogical principle, TPACK as a framework of professional knowledge, and AI literacy as a prerequisite for the safe and meaningful use of new tools. This theoretical synthesis makes it possible to examine not only whether Philologists use AI, but also under which pedagogical conditions they can integrate it meaningfully into their teaching practice.

Literature Review

The international literature converges on the view that digital technologies can support differentiated instruction by enhancing access to multimodal content, the adaptation of teaching materials, and student participation. In this context, differentiation is understood as an organised pedagogical response to learning heterogeneity, rather than merely as a variety of classroom activities (Tomlinson, 2017). At the same time, the TPACK model emphasises that the pedagogically meaningful use of technology depends on its connection with subject knowledge, rather than on the mechanical use of digital tools (Mishra & Koehler, 2006).

Recent literature on Generative Artificial Intelligence indicates that large language models can support functions such as summarisation, reformulation, question generation, the creation of alternative versions of educational materials, and the provision of feedback. These functions are particularly relevant in contexts characterised by learning heterogeneity (Chiu, 2023; Kasneci et al., 2023). However, their educational use is accompanied by concerns regarding the validity of generated content, misinformation, bias, and academic integrity.

For teachers in particular, professional readiness for the use of AI emerges as a critical factor. AI literacy includes not only the functional use of tools, but also the ability to evaluate, ethically manage, and pedagogically integrate them (Ng et al., 2021). Similarly, UNESCO (2024) stresses that teacher training should be linked to instructional scenarios, professional judgement, and ethical responsibility.

Despite the growing interest, research on the use of Generative AI in humanities subjects, and more specifically in the language and humanities classroom, remains limited. Most studies examine education in general or higher education in particular, while paying less attention to the specific characteristics of subjects based on text interpretation, the production of discourse, and the development of critical thinking (Kasneci et al., 2023; UNESCO, 2023). Thus, the question remains open as to how teachers themselves perceive the potential of AI to support differentiated instruction, what barriers they identify, and which training needs they consider critical.

In the Greek educational context, the literature highlights the importance of pedagogically grounded integration of digital technologies into teaching. However, it also points out that their use often remains limited to basic or supportive functions and does not always lead to a substantial transformation of teaching practice (Tzimogiannis, 2019; Koutrouba et al., 2021). In language and humanities subjects, this issue is particularly significant, as differentiation requires a high degree of preparation and adaptation of linguistic and textual material.

The use of Generative Artificial Intelligence adds a new dimension to this discussion, as large language models can support text simplification, reformulation, the production of graded activities, and the provision of feedback (Zhai et al., 2021; Baidoo-Anu & Ansah, 2023). In the Greek literature, however, the discussion of AI in language education remains at an early stage and focuses mainly on its challenges, possibilities, and ethical implications (Spanoudaki, 2023). This reinforces the need for further empirical studies focusing specifically on Philologists and on how they perceive the pedagogical value, limits, and conditions for using AI in differentiated instruction.

Contribution of the Study

The present study contributes to understanding how Philologists in secondary education approach the use of Generative Artificial Intelligence in differentiated instruction, a field that remains underexplored in the Greek educational context.

At the theoretical level, it connects AI with differentiated instruction, the TPACK model, and digital literacy in Artificial Intelligence, highlighting not only the technological but also the pedagogical, content-related, and ethical dimensions of its use. At the empirical level, it records Philologists' attitudes, self-perceived readiness, perceived barriers, and training needs regarding AI.

Although the study is situated in the Greek educational context, its contribution extends to the wider international discussion on AI in education. By focusing on Philologists and on subjects that depend heavily on text comprehension, interpretation, and discourse production, the study offers subject-specific evidence for an area that is often examined only in general terms. In this respect, the Greek case may provide useful insights for other educational systems seeking to integrate Generative AI into language and humanities teaching in a pedagogically responsible way.

At the same time, the findings may inform the design of targeted professional development interventions focused on text simplification, material differentiation, the formulation of appropriate prompts, and the evaluation of the validity of generated content. Overall, the study identifies the

conditions required for a pedagogically responsible and instructionally meaningful integration of AI into subjects taught by Philologists.

Purpose of the Study

The purpose of the present study is to investigate the attitudes and level of professional readiness of Philologists regarding the use of Generative Artificial Intelligence in differentiated instruction in secondary education.

More specifically, the study examines how teachers perceive the transition from traditional digital tools to AI tools, and the extent to which they consider these tools capable of supporting classroom heterogeneity. It also investigates the practical barriers, ethical concerns, and training needs associated with the pedagogical use of Generative AI in language and humanities subjects. Finally, it examines the possible influence of factors such as years of teaching experience and prior digital training on the formation of teachers' attitudes.

Research Questions

The present study seeks to answer the following research questions:

1. What is the degree of familiarity with, and use of, Generative Artificial Intelligence tools among Philologists for the design of differentiated teaching materials?
2. What are Philologists' attitudes towards the pedagogical value and effectiveness of Artificial Intelligence as a means of supporting classroom heterogeneity?
3. What are the main barriers—organisational, cognitive, and ethical—that teachers identify when attempting to integrate AI into differentiated instruction in humanities subjects?
4. What are Philologists' training needs regarding AI literacy and its connection with differentiated teaching practice?
5. To what extent do years of teaching experience and the level of prior digital training differentiate teachers' attitudes and readiness regarding the use of AI?

Sample and Sampling Procedure

The theoretical population of the present study consists of secondary education teachers in Greece belonging to the PE02 branch, namely Philologists. The study involved 90 teachers who, at the time of data collection, were serving in school units across the country. The sample was formed through convenience sampling, following the online dissemination of the questionnaire through educational networks and communities. Participants were selected on the basis of their availability and voluntary willingness to participate. Although this approach facilitated access to the field, it limits the possibility of full statistical generalisation of the findings to the wider population.

Accordingly, the findings of the study aim to explore trends, attitudes, and relationships among variables within this specific sample. All participants (N = 90) were Philologists, ensuring the relevance of the responses to the instructional characteristics of humanities subjects and to the challenges of differentiation through Artificial Intelligence.

Of the total number of participants, 56 were women and 34 were men. Data analysis focused on investigating possible differences in teachers' attitudes according to years of teaching experience and level of prior digital training, variables considered critical for understanding readiness to integrate AI tools into teaching practice.

The sample size is considered adequate for the application of descriptive and inferential statistical analyses, such as t-tests and ANOVA. It therefore allows the extraction of reliable conclusions regarding the field under investigation, always within the limitations imposed by the sampling method.

Data Collection

Data were collected through an online questionnaire, which was developed on the basis of the relevant literature on the digital transformation of education and differentiated instruction. The instrument drew its main conceptual axes from the TPACK framework (Technological Pedagogical Content Knowledge) and from contemporary scales measuring AI literacy, adapted to the instructional needs of language and humanities subjects.

The questionnaire was organised into six sections:
(a) demographic and professional characteristics, including gender, years of teaching experience, and level of digital certification;
(b) degree of familiarity with, and frequency of use of, Generative Artificial Intelligence tools (GenAI);
(c) perceived usefulness of AI for differentiated instruction, such as text simplification and the production of graded exercises;
(d) teachers' self-efficacy in managing new technologies;
(e) barriers, difficulties, and ethical concerns related to implementation; and
(f) needs for specialised professional development.

Closed-ended questions on a five-point Likert scale were used to record participants' attitudes and perceptions quantitatively. In addition, two open-ended questions were used supportively to interpret the quantitative findings and to record participants' experiences. The individual statements were grouped into composite indicators, such as "Perceived Usefulness", "Digital Readiness", and "Implementation Barriers", in order to examine differences according to years of teaching experience and prior technological training.

Data Collection Procedure

Data collection took place in the spring of 2026 through the online distribution of the questionnaire to digital communities and networks of Philologists. Online data collection was considered appropriate for the purposes of the present study, as it facilitated access to philologists from different school units across Greece, supported anonymous participation, and allowed the relatively rapid gathering of responses in a field marked by strong technological interest.

Before the main phase of data collection, the questionnaire was piloted with five Philologists. The purpose of the pilot procedure was to examine the clarity of the wording, particularly with regard to terminology related to Artificial Intelligence, such as Generative AI and LLMs; to estimate the time required for completion; and to identify any possible difficulties in understanding or ambiguities in the individual questions. The observations arising from the pilot implementation were used for limited rewording and minor improvements to the format of the instrument, with the aim of strengthening its content validity and usability during the main study.

Statistical Processing and Data Analysis

The statistical processing of the quantitative data was carried out using SPSS. Initially, descriptive statistics were applied, including frequencies, percentages, means, and standard deviations, in order to present the demographic characteristics of the sample and the general trends in the responses concerning the use of, and attitudes towards, Artificial Intelligence.

Subsequently, the internal consistency of the individual scales was examined using Cronbach's alpha. Based on the structure of the questionnaire and the TPACK theoretical model, composite indicators were calculated corresponding to the main dimensions of the study, such as "Degree of Familiarity with AI", "Perceived Usefulness for Differentiation", "Self-Efficacy", and "Implementation Barriers".

To investigate relationships between quantitative variables, Pearson's correlation coefficient (r) was used, for example to examine the relationship between the level of digital training and willingness to

use AI tools. For comparisons of mean scores between two independent groups, such as gender or possession of a postgraduate degree, independent-samples t-tests were applied.

For comparisons among more than two groups, such as differences in attitudes according to years of teaching experience (e.g., <10, 11–20, >20 years), one-way analysis of variance (one-way ANOVA) was used, accompanied by Tukey post-hoc tests where statistically significant differences were identified. The level of statistical significance was set at $p < .05$.

Analysis of Open-Ended Questions

The responses to the open-ended questions were used complementarily to strengthen the interpretation of the quantitative findings. Their analysis was based on the principles of thematic analysis proposed by Braun and Clarke (2021), with the aim of identifying recurring patterns in participants' responses. The process included familiarisation with the material, coding of responses, and grouping of codes into broader themes. The analysis was mainly inductive, in order to highlight issues related to teaching experiences, ethical concerns, and practical difficulties in the use of AI in subjects taught by Philologists. The themes were not presented as independent qualitative findings, but were used supportively to provide a fuller interpretation of the quantitative data.

Research Ethics

The study was conducted in accordance with the basic principles of research ethics. Participants were informed in advance about the purpose of the study, the voluntary nature of their participation, and their right to withdraw from the process at any time without any consequence.

Participation was fully anonymous, and no directly identifiable personal data that could identify the teachers were collected. Data management and analysis were carried out exclusively for research purposes, ensuring the confidentiality of responses and full compliance with the General Data Protection Regulation (GDPR).

Research Findings

First Research Question

Before analysing the responses, the reliability of the "Frequency of Use of AI Tools" scale was examined. The scale included eight items. Cronbach's alpha was .84, indicating high internal consistency and allowing the scale to be used further in the analysis.

Table 1. Statistics on the use of AI tools and correlation with digital training

Digital tool / practice	M	SD	Pearson r
Use of the internet to find educational material	4.65	0.52	.12
Use of AI, such as ChatGPT, to generate lesson-planning ideas	2.85	1.10	.48
Use of AI for text simplification	2.15	0.95	.52
Use of AI to produce graded exercises	1.90	0.88	.55

As shown in Table 1, lower secondary school Philologists report very high use of basic digital practices, such as searching for educational material on the internet, whereas the use of Generative Artificial Intelligence tools remains clearly more limited. The most frequent use of AI concerns the generation of ideas for lesson planning ($M = 2.85$), while lower values are recorded for more complex practices, such as text simplification ($M = 2.15$) and the production of graded exercises ($M = 1.90$). This finding suggests that AI has begun to enter teaching practice mainly as a supportive tool for planning, rather than as a systematic means of differentiating teaching materials.

The correlation with digital training indicates that the use of AI tools is positively associated with teachers' level of prior digital familiarity. More specifically, a moderate to strong positive correlation was recorded between digital training and the use of AI for text simplification ($r = .52$, $p < .01$), as

well as for the production of graded exercises ($r = .55$, $p < .01$). By contrast, the use of the internet to find educational material showed no substantial correlation with digital training ($r = .12$, $p > .05$), suggesting that it constitutes an already established basic digital practice.

The open-ended responses reinforced this picture. Teachers with a lower sense of readiness reported that they mainly rely on basic digital tools, whereas those who appeared to be more trained or familiar with new technologies described AI as a tool that can accelerate the adaptation of teaching materials for students with different learning characteristics.

Overall, the findings related to the first research question indicate that the use of Generative Artificial Intelligence by Philologists is still at an early stage. Its use appears to concern mainly supportive lesson planning, rather than its full integration into differentiated instruction.

Second Research Question

Before interpreting the findings, the internal consistency of the "Attitudes and Pedagogical Value" scale was examined. The scale included six items. Cronbach's alpha was .81, indicating satisfactory reliability.

Table 2. Attitudes towards the pedagogical value of AI and correlation with intention to implement it

Statement	M	SD	Pearson r
AI facilitates the adaptation of material for students with special educational needs	3.95	0.72	.61
AI helps create differentiated material more quickly	4.10	0.65	.58
I am concerned about a reduction in students' critical thinking	4.15	0.88	-.35
AI enhances inclusion in the classroom	3.25	0.82	.42

The data presented in Table 2 show that Philologists recognise to a considerable extent the functional value of Artificial Intelligence for differentiated instruction. The highest mean scores were recorded for the statement that AI helps create differentiated material in less time ($M = 4.10$), as well as for the statement that it facilitates the adaptation of material for students with special educational needs ($M = 3.95$). These findings suggest that teachers attribute practical and pedagogical usefulness to AI, particularly in relation to supporting classroom heterogeneity.

The statistical analysis also showed that a positive evaluation of the pedagogical value of AI is associated with a stronger intention to use it in the future. More specifically, a strong positive correlation was recorded between the belief that AI facilitates the adaptation of material for students with special educational needs and the intention to implement it in teaching practice ($r = .61$, $p < .01$). A positive correlation was also found for the statement that AI helps create differentiated material more quickly ($r = .58$, $p < .01$).

At the same time, strong concern was recorded regarding the possible effects of AI on students' critical thinking ($M = 4.15$). This dimension showed a negative correlation with intention to use AI ($r = -.35$, $p < .05$), suggesting that the stronger teachers' reservations about the cognitive consequences of the technology, the lower their willingness to integrate it into teaching practice.

The open-ended responses reinforced this picture. The qualitative analysis highlighted the theme of "useful but precarious use", as many participants acknowledged that AI can facilitate comprehension and the adaptation of material, while also expressing concern that excessive dependence on it may limit authentic engagement with texts and students' active participation.

Overall, the findings related to the second research question indicate that Philologists' attitudes towards AI are both positive and cautious. Teachers appear to recognise the potential of the technology for differentiated instruction, without overlooking the pedagogical and cognitive risks associated with its use.

Third Research Question

Before interpreting the findings, the internal consistency of the scale examining barriers to the implementation of Artificial Intelligence was assessed. The scale included five items and showed satisfactory reliability, with Cronbach's alpha reaching .79. This value allows the individual items to be grouped into a composite indicator of perceived barriers.

Table 3. Barriers to the implementation of AI and their correlation with digital self-efficacy

Barriers / Difficulties	M	SD	Pearson r
Lack of specialised professional development	4.45	0.62	-.54
Absence of an institutional framework / guidelines	4.25	0.75	-.28
Limited time for lesson planning	4.05	0.78	-.41
Doubts about the validity of AI-generated content	3.90	0.85	-.49

The data presented in Table 3 show that Philologists perceive the lack of specialised professional development (M = 4.45), the absence of an institutional framework or clear guidelines (M = 4.25), and limited time for lesson planning (M = 4.05) as the most significant barriers. These findings suggest that the difficulty of integrating AI is not attributed primarily to technical deficiencies, but rather to issues related to professional preparation, institutional support, and available instructional time.

The statistical analysis showed that perceived barriers are negatively associated with teachers' digital self-efficacy. More specifically, a strong negative correlation was recorded between the lack of specialised professional development and self-efficacy ($r = -.54$, $p < .01$). This finding suggests that the stronger the perceived inadequacy of training, the lower teachers' confidence in their ability to use AI in teaching practice.

A negative correlation was also recorded between doubts about the validity of AI-generated content and digital self-efficacy ($r = -.49$, $p < .01$). This finding indicates that teachers who feel less prepared to use AI tend to express stronger reservations about the reliability of its outputs and, consequently, greater caution regarding its instructional use.

The open-ended responses reinforced this picture. The qualitative analysis highlighted the theme of "cognitive insecurity and lack of control", as several participants reported that the main problem is not access to technology, but the difficulty of assessing the accuracy and pedagogical appropriateness of the material it generates.

Overall, the findings related to the third research question indicate that the most significant barriers to the integration of AI into differentiated instruction are associated with professional development, institutional guidance, available time, and trust in the validity of generated content. At the same time, their negative correlation with digital self-efficacy suggests that teachers' sense of readiness is closely linked to the way they evaluate the difficulties involved in implementing AI.

Fourth Research Question

Before interpreting the findings, the internal consistency of the "Training Needs" scale was examined. The scale included five items. Cronbach's alpha was .88, indicating very high reliability.

Table 4. Training needs and their correlation with the perceived usefulness of AI in teaching

Area of professional development	M	SD	Pearson r
Prompt engineering techniques for subjects taught by Philologists	4.55	0.58	.65
Use of AI for text simplification and material differentiation	4.60	0.52	.72
Evaluation of the validity of AI-generated content	4.40	0.68	.38
Ethical use and protection against plagiarism	4.30	0.75	.25

The data presented in Table 4 show that Philologists attach particularly high importance to professional development directly related to the practical use of AI in differentiated instruction. The highest mean score was recorded for training in the use of AI for text simplification and material differentiation (M = 4.60), followed by the need to learn prompt formulation techniques for subjects taught by Philologists (M = 4.55). This finding suggests that teachers' interest is not limited to a general concern with technology, but focuses on applied knowledge with direct instructional relevance.

The statistical analysis also showed that the perceived usefulness of AI is positively associated with the intensity of training needs. More specifically, a very strong positive correlation was recorded between the perceived usefulness of AI and the need for training in its use for material differentiation ($r = .72$, $p < .01$). Similarly, a strong positive correlation was found between perceived usefulness and the need to learn prompt engineering techniques ($r = .65$, $p < .01$). These findings indicate that teachers who attribute greater pedagogical value to AI are also more willing to invest in targeted professional development for its use.

The open-ended responses reinforced this picture. The qualitative analysis highlighted the theme of "from theory to application", as many participants stressed that they do not need general theoretical presentations on AI, but practical guidance adapted to the subjects taught by Philologists and to the actual needs of the classroom. Their responses indicate that the desire for professional development is mainly associated with the need for more effective adaptation of teaching materials and safer use of technology in everyday teaching practice.

Overall, the findings related to the fourth research question indicate that Philologists' training needs focus primarily on applied skills for using AI, especially in relation to material differentiation, the formulation of appropriate prompts, and the evaluation of the validity of generated content. At the same time, the positive correlation between these needs and the perceived usefulness of AI suggests that acceptance of the technology is closely linked to the expectation of its practical pedagogical use.

Fifth Research Question

The fifth research question examined the extent to which specific professional characteristics of Philologists, such as years of teaching experience and possession of Level B ICT Certification, are associated with their digital readiness and self-efficacy regarding the use of Artificial Intelligence in teaching practice.

Effect of Teaching Experience

To investigate the relationship between years of teaching experience and the "Digital Readiness for AI" index, a one-way analysis of variance (one-way ANOVA) was applied.

Table 5. Comparison of Digital Readiness by Years of Teaching Experience

Variable	Group (years)	N	M	SD	F	p
Digital Readiness	< 10 years	25	4.12	0.55	5.84	.004
	11–20 years	40	3.55	0.68		
	> 20 years	25	3.10	0.82		

The ANOVA showed a statistically significant difference among the groups, $F(2, 87) = 5.84$, $p = .004$. Tukey post-hoc tests indicated that Philologists with fewer than 10 years of teaching experience demonstrated significantly higher digital readiness compared with colleagues with more than 20 years of service. This finding suggests that shorter teaching experience is associated with greater readiness

to use AI. However, it does not allow years of service to be equated with age, nor does it permit causal conclusions.

Effect of Digital Certification

To examine whether possession of Level B ICT Certification, a formal teacher training certification in ICT within the Greek educational system, is associated with differences in "AI Self-Efficacy", an independent-samples t-test was applied.

Table 6. Differences in Self-Efficacy by Possession of Level B ICT Certification

Variable	ICT Certification	N	M	SD	t	p
Self-Efficacy in the use of AI	Yes	34	4.05	0.62	4.15	< .001
	No	56	3.12	0.75		

The results showed that teachers who held Level B ICT Certification recorded statistically significantly higher self-efficacy in the use of AI ($M = 4.05$, $SD = 0.62$) compared with those who did not hold this certification ($M = 3.12$, $SD = 0.75$), $t(88) = 4.15$, $p < .001$. This finding suggests that prior institutional training in ICT is associated with greater confidence in teachers' ability to use AI in teaching practice.

The open-ended responses reinforced this picture. The qualitative analysis highlighted the theme of "certification as a source of confidence", as participants with higher levels of training described greater ease in engaging with new platforms and greater flexibility in adapting them to the needs of subjects taught by Philologists. By contrast, several teachers without relevant certification expressed a sense of insecurity and difficulty in orienting themselves towards new technological demands.

Overall, the findings related to the fifth research question indicate that Philologists' digital readiness and self-efficacy regarding AI are not evenly distributed. Shorter teaching experience and the existence of prior digital certification appear to be associated with more favourable attitudes and a stronger sense of readiness to use Artificial Intelligence in differentiated instruction.

DISCUSSION

The present study documented how Philologists approach the use of Generative Artificial Intelligence in differentiated instruction. The findings point to a period of pedagogical and digital transition: teachers appear to be familiar with basic digital practices, but more cautious regarding the substantive integration of AI. This picture is also consistent with the Greek-language literature, according to which the use of digital tools often remains limited to basic or supportive functions and does not always lead to a substantial transformation of teaching practice (Tzimogiannis, 2019; Koutrouba et al., 2021).

The findings related to the first and second research questions showed that AI is used mainly as a tool for supporting lesson planning, rather than as a systematic means of implementing differentiated interventions in the classroom. Philologists recognise its usefulness for text simplification, the adaptation of material, and the support of students with different needs. However, they also maintain strong reservations about its possible effects on critical thinking, the authenticity of learning, and linguistic processing. This finding is consistent both with the international literature (Kasneci et al., 2023) and with the Greek discussion, which remains at an early stage and focuses mainly on the possibilities, challenges, and ethical implications of AI in language education (Spanoudaki, 2023).

The results related to the third research question showed that the most significant barriers are not located primarily in technical infrastructure, but in the lack of specialised professional development, institutional ambiguity, and uncertainty regarding the validity of generated content. This finding shifts the discussion from mere access to technology towards the need to develop more complex professional skills linked to critical evaluation and the pedagogically responsible use of AI (Ng et al., 2021). Similarly, the Greek-language literature has pointed out that the pedagogical use of technology

remains limited when it is not accompanied by meaningful professional development and well-grounded integration into teaching practice (Tzimogiannis, 2019; Koutrouba et al., 2021).

The fourth research question reinforced this picture, as it showed that Philologists' training needs are mainly applied in nature. The emphasis on text simplification, material differentiation, the formulation of appropriate prompts, and the evaluation of content validity indicates that teachers are seeking practical tools with direct instructional relevance. Here too, the findings are consistent with the Greek literature, which stresses that the meaningful use of technology depends on teachers' ability to connect it with their instructional design (Tzimogiannis, 2019).

Finally, the fifth research question showed that readiness and self-efficacy regarding AI are not evenly distributed. Shorter teaching experience and possession of Level B ICT Certification were associated with higher digital readiness and greater self-efficacy, suggesting that prior experience with digital practices and relevant professional development appear to facilitate acceptance of new tools. This finding, however, should be interpreted with caution, as the present study identifies associations and does not allow causal conclusions.

Overall, the findings indicate that Philologists do not reject Generative Artificial Intelligence, but approach it with cautious acceptance. Its pedagogical legitimacy appears to be strengthened when it is linked to clear differentiation goals, critical evaluation of content, and targeted professional development. In this sense, the integration of AI into subjects taught by Philologists depends less on the availability of tools and more on the pedagogical, content-related, and institutional conditions required for their responsible use.

Conclusions

The present study showed that Philologists in secondary education approach Generative Artificial Intelligence as a tool with considerable potential for differentiated instruction, although its use has not yet acquired a stable and mature character in school practice. Teachers mainly recognise its usefulness in text simplification, the adaptation of teaching materials, and the facilitation of lesson preparation, particularly in conditions of learning heterogeneity. However, its actual use remains limited and concerns mainly supportive planning functions rather than systematic integration into teaching.

A central conclusion of the study is that Philologists' acceptance of AI is not uncritical. It coexists with strong reservations regarding the validity of generated content, the possibility of inaccuracies, and its possible effects on critical thinking, authentic discourse production, and students' relationship with texts. For subjects taught by Philologists, this point is particularly important, as it shows that the use of AI is not perceived merely as a technological innovation, but as an intervention that touches the core of language and interpretive teaching.

The study also showed that the most significant barriers to the integration of AI are not primarily technical, but are related to the lack of specialised professional development, the absence of a clear institutional framework, limited planning time, and the difficulty of evaluating generated content. Correspondingly, Philologists' training needs are clearly applied in nature, as they mainly concern text simplification, material differentiation, the formulation of appropriate prompts, validity checking, and the ethical use of AI. This finding suggests that future professional development should be targeted, experiential, and connected with the actual instructional challenges of subjects taught by Philologists.

Finally, the study highlighted that Philologists' digital readiness and self-efficacy are not evenly distributed. Shorter teaching experience and prior digital training were associated with greater readiness and confidence in using AI. Although these findings do not allow causal conclusions, they indicate that previous experience with digital practices and professional development can support the pedagogically controlled use of AI.

Although the study is grounded in the Greek educational context, its conclusions may also contribute to the wider international discussion on the integration of Generative AI into language and humanities education. The findings suggest that the central issue is not only whether teachers use AI tools, but whether they are able to connect them with subject-specific pedagogical goals, critical evaluation, and differentiated support for learners. This perspective may be relevant for other educational systems that are currently attempting to move from general discussions about AI to more discipline-sensitive and pedagogically responsible models of classroom integration.

Overall, the study shows that Generative Artificial Intelligence is viewed by Philologists neither as a threat to be rejected nor as a neutral tool that can be used without conditions. Rather, it is approached as a means with clear potential but also substantial limitations, whose educational value depends on pedagogical oversight, critical use, teacher training, and the institutional support that will frame its implementation.

Limitations of the Study

The present study has certain limitations that should be taken into account when interpreting the findings. First, the sample was relatively limited and was formed through convenience sampling, which does not allow the results to be generalised to all Philologists in Greece.

In addition, the study was based on self-reported data collected through a questionnaire. It therefore mainly captured attitudes, perceptions, and self-perceived readiness, without direct observation of teaching practices. The cross-sectional nature of the study allows the examination of relationships among variables, but does not permit causal conclusions.

Finally, the open-ended questions were used only supportively, while Generative Artificial Intelligence constitutes a new and rapidly evolving field. This may have affected the way participants understood key terms and applications related to it.

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