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AI Is Here to Stay: An Empirical Study of Attitudes Among Teachers of English and German

ABSTRACT

Artificial intelligence (AI) is a disruptor increasingly impacting foreign language learning and teaching. This paper explores the theoretical framework of AI, its application in foreign language teaching, and the question of whether AI is displacing foreign language teachers. The empirical part presents findings from a survey of English and German teachers (n = 112) in Slovenian primary and secondary schools regarding their views on AI in foreign language teaching. Statistical analysis reveals a constructively critical attitude towards AI among teachers, acknowledging its presence in and influence on teaching strategies, methods, and teacher roles but not perceiving it as a fundamental threat. Furthermore, statistical tests and correlations indicate no significant differences in attitude towards AI in the classroom based on whether they are English or German teachers or whether they work in primary or secondary schools.

Keywords: AI, disruption, teaching English and German as a foreign language, challenges, problems

UI je prišla in bo ostala: empirična raziskava o stališčih učiteljev in učiteljic angleščine in nemščine

IZVLEČEK

Umetna inteligenca (UI) je kot disrupcija močno posegla tudi v učenje in poučevanje tujega jezika. V prispevku najprej osvetlimo teoretski okvir pojmovanja UI, razpravljamo o UI pri pouku tujega jezika in se posvečamo tudi vprašanju, ali UI izpodrinja učitelje in učiteljice tujega jezika. V empiričnem delu predstavljamo izsledke raziskave, v kateri so svoja stališča o UI pri pouku tujega jezika izrazili učitelji in učiteljice angleščine in nemščine (n = 112) v osnovnih in srednjih šolah v Sloveniji. Statistična analiza podatkov anketiranih je pokazala, da so do UI konstruktivno kritični, da se zavedajo njene prisotnosti in da zelo vpliva na strategije, metode dela pri pouku in delo učiteljev in učiteljic, jih spreminja, a jih ne ogroža. S statističnimi testi in korelacijami pa smo ugotavljali tudi, da ni statistično pomembnih razlik med stališči anketiranih do UI pri pouku glede na to, ali učijo angleščino ali nemščino, niti ne, ali delajo v osnovni ali v srednji šoli.

Ključne besede: UI, disrupcija, pouk angleščine in nemščine kot tujega jezika, izzivi, problemi

1 Introduction

Elias inspires Carinthian students as a sports teacher in Austria or as an English teacher for students in Finland; Charlie supports students at primary schools in Switzerland in developing social skills and dealing with emotions; Pepper enjoys teaching pupils in a school in Serbia, etc. Elias, Charlie, and Pepper are obviously excellent, popular teachers but simultaneously humanoid robots. They function based on artificial intelligence (AI); they learn and teach what is being taught to them, and they use both factual knowledge and non-verbal communication. Watching students communicate with humanoid robots is fascinating but also frightening. Students are motivated; they listen; they are willing to imitate the robot in sports; they smile when their errors are corrected; they endeavour to be better and are happy when the robot praises them and is satisfied with their work or performance.

The enthusiastic engagement of students with humanoid robots offers a compelling glimpse into the potential of AI to shape learning experiences. However, the increasing sophistication of AI in education presents both opportunities and challenges. While AI-supported tools have become essential, the disruptive nature of this technology requires that educators adapt and prepare for significant change. After such disruption, returning to the status quo ante is no longer possible. In the context of AI, we must accept it as a new reality in education – which is the focus of this article – and develop strategies and procedures that enable teachers and AI to work together harmoniously and optimally in the educational process.

This paper aims to present the conceptual framework of artificial intelligence in foreign language teaching. It also shares selected findings from an empirical survey of foreign language teachers in Slovenia, i.e. teachers of English and German, regarding the use of AI in their classrooms. Finally, it explores potential differences in perspective between English and German teachers on this topic. Within the context of various dilemmas posed by the use of AI in education, this paper seeks, among other things, theoretical and empirical answers to the vital question of whether AI will ultimately replace the foreign language teacher.

Comparable questions also formed the starting point for empirical research by the Vodafone Foundation in Germany. Their target audience, however, was not classroom teachers but citizens, or parents of school-age children. They conducted an interesting, topical, and representative study on AI in schools with 5,000 citizens and 500 parents of school-age children, with the meaningful title Expedition into the Unknown (Vodafone 2023, 1-24).[1] Below, we summarise the most important findings. Analysis of the results reveals that slightly more than half the respondents (the study states a majority) believe that AI will significantly change the future of the classroom (54%). Although at the time of the survey, they were still sceptical about the use of AI in school, seeing it as a threat rather than an opportunity (57%), they also wanted AI to become part of the curriculum (55%). The study explains this seemingly paradoxical finding by saying that those who understand that AI (e.g., ChatGPT) will remain part of our lives want children to be ready for this challenge. Respondents also believe that developing

[1] More than 5,000 German citizens aged 18+ and 500 parents with school-age children up to 18 years participated in the study. The empirical data was collected over three days, from 23 March 2023 to 25 March 2023, in an open online panel (Vodafone 2023).

digital competences is primarily the responsibility of schools (77%) and only then of parents. Interestingly, the study also confirmed by two-thirds that the regulation of the use of AI in school should be determined at the school level and not, as is common in Germany for school regulation, at the level of the federal state (cf. Vodafone 2023). The answer to the question of whether artificial intelligence will replace "natural intelligence," i.e. the teacher, in the future is not a dilemma for the respondents of the Vodafone study, as 90% of them do not think this will happen.

Having explored the perspectives of citizens and parents on AI in schools, it is crucial to establish a clear understanding of what exactly this term means. The subsequent section will explore the definition and historical context of artificial intelligence.

2 Artificial Intelligence

2.1 Artificial Intelligence – A Conceptual Framework

The term *artificial intelligence* was first used in 1956 by a group of experts at Harvard as part of the *Summer Research Project on Artificial Intelligence* (1956). The experts set themselves the goal of describing the learning process and the characteristics of intelligence in such detail that they could develop a machine that could simulate this process (Ramge 2018, 33). The term *artificial intelligence* has since been frequently used in publications addressing the Turing test. Several experts, including Kačič (2024), have explored the appropriateness of the term *artificial intelligence*. According to Kačič, drawing on definitions from *The Britannica Dictionary, intelligence* is defined as the ability to learn, understand and make judgements or opinions based on reason and the ability to cope with novel or tricky situations. The adjective *artificial* denotes a physical substitute with equivalent functionality to a natural counterpart (artificial hip, artificial knee, artificial tooth, etc.) and is used in various contexts, including technology and medicine (cf. Kačič 2024). Since artificial intelligence does not have the equivalent functionality of natural intelligence and since it learns but does not have the ability to judge, understand what it has learnt or have an opinion, Kačič proposes the term *virtual intelligence*. Despite the conceptual appropriateness of the term *virtual intelligence*, Kačič (2024; cf. also De Florio-Hansen 2020, 46)[2] acknowledges that the term *artificial intelligence* is so deeply rooted and so widely used that it would be difficult or downright impossible to change.

The well-known and often quoted technicist definition of AI was drafted by the OECD in 2023 and revised in 2024. "An AI system is a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment" (OECD 2024). The European Parliament, however, more politely and tellingly, but also less precisely, has stated that "AI is the ability of a machine to display human-like capabilities such as reasoning, learning, planning and creativity" (European Parliament).

[2] In addition to the term *artificial intelligence*, terms for the opposing type of intelligence, such as human intelligence, natural intelligence and non-AI, appear in professional publications. Interestingly, however, there is not the same unanimity in professional and popular circles when it comes to naming these intelligences as there is for artificial intelligence.

These definitions, and many others, are unanimous in ascribing to a machine, system, or programme similar capabilities to those of a human being, i.e. thinking, reasoning, learning, and communicating. This understanding of AI will be the starting point for this paper.

2.2 Artificial Intelligence – A Development Framework

Since 1956, the development of artificial intelligence, or the tools supported by artificial intelligence, has experienced exponential growth. Despite this rapid development, experts distinguish between AI Winter and AI Summer. During an AI Winter, progress continues, but AI receives less attention from both experts and the public. Conversely, an AI Summer is characterised by intense development, and AI is at the centre of the action and of both expert and non-expert discussions. Current predictions and analyses suggest we are in an extended AI Summer, with some even suggesting a "perpetual summer" (cf. Rubanau 2024).

Experts categorise AI into weak and strong AI (e.g., Wong 2020; Miao et al. 2021). Weak AI refers to tools and systems that focus on and are highly successful at solving specific problems (e.g., language learning and translation tools such as Duolingo, Grammarly, and Duden Mentor) (Marr 2018, 21). Strong AI, also called superintelligence, aims to create systems of neural networks that mimic human brain function, including the interpretation of emotions, feelings, and context, and are capable of learning on their own. While numerous tools are powered by weak intelligence, those supported by strong intelligence are still evolving. It is the latter that have become cause for concern and fear; the pace of development is breakneck, while the development of control systems and systems to monitor their use is lagging far behind. This concern was highlighted by a widely publicised open letter in early 2023, signed by technology giants, calling for a six-month moratorium on the development of AI systems more powerful than ChatGPT. They argued that the development was too fast for legal certainty and that the risks to humans and humanity were too significant (Clarke 2023). Despite this call, the proposal for a moratorium has not been implemented, and development is proceeding at its own rapid pace, as evidenced by numerous publications and studies. Above all, AI is increasingly permeating and transforming the educational space, including foreign language learning.

3 Artificial Intelligence in Foreign Language Learning

3.1 Literature Review

The number of publications on AI in and for education is growing exponentially. Experts from diverse fields, computer scientists, but also psychologists, philosophers, linguists, neuroscientists, economists, politicians, translators, etc., are writing about AI with the common goal of getting to know, understand and explore the potentials and limitations of AI as much as possible.

At the time of writing, for example, 64,166 publications on artificial intelligence and education have been published in the University of Maribor's electronic resources system in the last five years in English (search string: artificial intelligence and education), 195 in German (search string: künstliche Intelligenz und Bildung), and 21 in Slovene (search string:

umetna inteligenca) (e.g., UM:NIK 2025). There has been a surge of publications reviewing and analysing AI research. In particular, the number of discussions increased when OpenAI released ChatGPT, a revolutionary application, freely available on 30 November 2022 (Hong 2023, 38). ChatGPT is a chatbot that can conduct a dialogue with an interlocutor in a convincing way and offers a wide range of possibilities that go beyond traditional pedagogical procedures (Baskara and Mukarto 2023). Although it does not understand the questions but generates answers according to the principles of frequency and relevance (Thorp 2023, 313), it has made particularly strong inroads into the (foreign) language learning and teaching process. Further possibilities and pitfalls of using ChatGPT in learning and teaching will not be discussed in this paper because of its limited scope (e.g., Hong 2023; Kasneci et al. 2023; Kartal 2023; Dolenc and Brumen 2024; Tica and Krsmanović 2024); ChatGPT will be considered as one of the AI tools in foreign language teaching.

Among the contributions in Slovene that are of interest to the Slovene pedagogical area, we would like to highlight the following:

> 1) a monograph on contemporary perspectives on society and artificial intelligence (Bregant, Aberšek and Borstner 2022). It brings together high-profile scientific contributions, in which AI is interdisciplinarily and critically discussed from the perspectives of computer scientists, psychologists and educators; 2) a scientific monograph on the use of generative AI in education (Žerovnik and Zapušek 2024). It lays the theoretical groundwork for the innovative and practical use of AI in education, discusses the ethical aspects of the use of AI, and identifies guidelines for the integration of generative AI in education (Žerovnik and Zapušek 2024). In addition to the above, there is a vast number of master's and bachelor's theses, as well as lectures, seminars, forums, and portals where users can learn about the practical possibilities of using tools, most often ChatGPT, in school. It is up to each individual to consider the quality, professionalism, criticality, accountability, and marketing interests of these tools.

However, the number of resources in English that are also interesting to the Slovenian pedagogical area is almost innumerable. We would like to highlight two key sources:

> First, an interdisciplinary scientific monograph by Licardo and Lipovec (2024) that explores the intersection of AI literacy and social-emotional skills within the educational context. The contributions in this monograph are empirical studies conducted in Slovenia that address the technical aspects of AI, and its ethical dimensions, while also providing a deeper insight into social-emotional learning. The main purpose of the studies is to show, in a theoretically grounded and empirically supported way, how AI and social-emotional skills, as transversal competences, can be developed and integrated into educational frameworks. The second key source is a scientific paper by Dolenc and Brumen (2024) that focuses on foreign language teaching and investigates social and computer science students' perceptions of the integration and use of AI-based technologies in education. The empirical results highlighted an interesting aspect that is not often discussed in the context of AI and education, i.e. the importance of the gender and discipline of the teacher to the introduction of AI

in education. Students in social sciences and women are generally less inclined to use AI tools in foreign language education, often expressing doubts about their ability to enhance academic performance. These groups tend to be more critical of or cautious about the role AI plays in language learning. While they acknowledge that AI can be a useful tool to enrich the learning process, they also emphasise the irreplaceable value of human teachers in education. This empirical research is particularly relevant for the development of guidelines for teacher education, which usually do not consider the importance of gender and the professional profile of the teacher.

There are also many papers on the question of whether AI will replace the teacher (e.g., Chan and Tsi 2024; Bouras 2024; Pettersson et al. 2024; Knaus 2024). As a point of interest, we summarise an excursus by Knaus in which he reflects from an educator's perspective on whether teachers are still needed in the world of AI. Knaus (2024) believes that the answer to the question is a dystopian vision that runs like a thread through the history of media. As soon as a technical innovation has potential similar to a teacher's, there is talk that it may displace them. Thus, at the beginning of the book, Knaus reports that innovation was once credited with breaking down the teacher's "information monopoly." School television, programmed learning, language labs, Virtual Learning Environments (VLEs), Personal Learning Environments (PLEs) or Massive Open Online Courses (MOOCs) could also be labelled as attempts at an educational revolution, each aiming to distribute information more widely and potentially displace the teacher. Knaus believes that, despite AI systems, which are undoubtedly excellent, this will not happen because the learning process is not only about interaction and communication of knowledge (which AI can do) but also about relationships, the development of individuals, enculturation, social integration, and social competences, which can only be developed if one is in society/in contact with human beings/people (cf. Knaus 2024, 20–21).

3.2 Challenges and Problems of Using Artificial Intelligence in Foreign Language Teaching

Traditionally, learning and teaching foreign languages has been done with the help of ICT. Most foreign language teachers are familiar with ICT and use it regularly in their work. In the professional literature, this type of learning and teaching is called Computer Assisted Language Learning (CALL) or Mobile Assisted Language Learning (MALL). However, with developments in natural language processing, advances in deep and networked learning, and the increasing technological ability to handle big data, Intelligent Computer-Assisted Language Learning (ICALL) has evolved. On the one hand, Intelligent Computer-Assisted Language Learning systems have brought about a fundamental qualitative change in student-computer interaction (Kannan and Munday 2018); on the other hand, they have severely disrupted existing pedagogical formats of foreign language learning and teaching. Alongside this relativisation of existing pedagogical formats, ICALL has also sparked a series of controversial debates and reflections on the necessity and reasonableness of using AI for learning and teaching, as well as on the dangers and disruptive changes that its imminent use seems to imply (e.g., Strasser 2020; Dargan 2019; Renz et al. 2020).

The biggest problems, fears, and legitimate dangers of AI in foreign language learning and teaching faced by teachers, decision-makers, students, and parents revolve around several key questions. These include the role of both the foreign language teacher and the learner in the new concepts of AI-assisted learning; issues of authorship, ethics, and copyright; issues of personal data protection and regulation of AI use; issues of the goals and competences to be developed in foreign language teaching, knowledge, testing, etc. Tica and Krsmanović (2024) address these concerns by emphasizing student apprehensions about ChatGPT's limitations. Students often worry that such tools may not effectively cultivate deep linguistic competence or critical thinking. Moreover, fears of plagiarism, diminished originality and shallow engagement with learning materials make some students reluctant to rely on AI. These concerns suggest that AI should complement rather than replace traditional teaching methods, serving as a supportive resource rather than a primary instructional tool. Despite the intense debates in this area, systems are far too complex for us to expect answers soon or even in step with technological developments. This is particularly true in the field of education, where change is extremely slow, and the gap between technological development and realised change at the implementation level is the greatest. Also, the media habitus of teachers (and decision-makers) lags far behind media developments (cf. Hartmann 2021; Burow 2022). Beyond the challenges and problems, it should be emphasised, and the expert community agrees, that AI will not (or will not for some time) replace the teacher and traditional learning and teaching formats, but it will change and complement them (cf. Renz, Krishnaraja and Gronau 2020; Hartmann 2023).[3]

4 Artificial Intelligence in Foreign Language Teaching in Slovenia – Findings from Empirical Research

In the empirical part, we present the views of foreign language (English and German) teachers in Slovenia on the use of artificial intelligence in foreign language learning and teaching. We start from the thesis that foreign language teachers in Slovenia are mostly hesitant towards the use of AI, that they do not consider AI to offer serious competition for them in the future, and that there is no difference in the views of English and German teachers (cf. Jazbec 2024). The research questions guided our analysis and were answered using a survey questionnaire. The data and the analysis of the results contribute to the quantitative analysis and interpretation of the research questions. While this study provides a quantitative overview, in-depth analyses of teachers' attitudes, experiences, and practices, including the nuances of their perspectives, would require qualitative research and interpretations of the data collected and the theoretical starting points.

At the outset, it is essential to acknowledge that the analysed data presented must be read and understood within the context of our predefined limitations. Several limitations should be considered when interpreting the findings of this study. The sample was non-random, consisting of teachers who chose to participate. This could introduce selection bias, as those who are more interested in or favourable towards AI may have been more likely to respond.

[3] Bill Gates made a similar point: "AI will never replace teachers, but it is going to revolutionise teaching & learning" Gates (ASU&GSV conference, San Diego 2023).

Owing to the non-random sampling method, the results of the study cannot be generalised to all foreign language teachers in Slovenia or to other contexts. Since the survey was self-administered and anonymous, there is a potential for response bias. Teachers may have provided responses they perceived as more socially acceptable or favourable regarding their professional use of AI, such as overestimating their current use or expressing more positive attitudes than they genuinely hold.

4.1 Method

The purpose of the study is to gain insight into the views and beliefs of English and/or German language teachers on the use of artificial intelligence in foreign language teaching. The research questions were as follows:

- What are the beliefs of foreign language teachers on the use of AI in the future? Do they perceive AI as an opportunity or a threat? Are there significant differences in opinions between English and German language teachers on whether AI is an advantage or a threat in the classroom?
- What are the views of foreign language teachers on the role of the teacher in AI use and the impact of AI use on learning? Are there differences between German and English language teachers on these issues?
- What are the correlations between beliefs about the potential of AI to improve teaching in schools, beliefs about the possibility that AI will not completely replace foreign language teachers in the future, and perceptions of the effects of AI on positive changes in student learning habits?
- Do teachers know if their students use AI for learning, and is there a difference between teachers in primary school and teachers in upper secondary school on this question?

4.2 Participants and Data Collection

The survey involved 112 foreign language teachers, including 46 German teachers, 41 English teachers, 19 teachers of both English and German, and 6 teachers of other languages or subject areas. Of the teachers in the sample, 44% teach at primary schools, 51% at high schools, and 5% elsewhere. Most teachers have 21 to 30 years of work experience (36%), followed by teachers with up to 10 years of experience (29%), then 11 to 20 years (26%), and the smallest proportion have 31 to 40 years of experience (9%). It can be concluded that the study involved experienced teachers, as two-thirds of the surveyed teachers have ten or more years of work experience. It is a non-random sample, and generalisation of the results is not possible.

The profile of the respondents closely mirrors the overall population of foreign language teachers in Slovenia (Eurydice 2021/2022): half or a comparable percentage are employed in primary and high schools, and the languages German and English are equally represented in terms of the teacher profile. Also, most surveyed teachers have at least ten years of experience working in schools. Data were collected through a survey that was published on the online survey platform 1ka portal. Respondents could fill out the survey from May 2023 to August 2023. In the

survey, they consented to the collection of data and the publication of results. The survey is anonymous, and the data are processed at the group level.

4.3 The Instrument

This study employed a survey instrument designed to collect anonymous data, ensuring confidentiality and privacy. The instrument is designed to assess the attitudes and experiences of foreign language teachers concerning AI in education, comparing these to the broader teacher population in Slovenia. This allows for a detailed exploration of how AI is viewed within the educational context by those directly impacted by its integration. It includes 13 questions and utilises 51 variables to gather comprehensive insights. The questions cover a range of topics, including the current and potential future role of artificial intelligence in teaching, teachers' perceptions of AI as an opportunity or threat, and the practical uses of AI in educational settings.

The response options across the questions include Likert-type scales (e.g., strongly agree to strongly disagree), dichotomous choices (e.g., yes or no), and multiple-choice questions where respondents can select more than one answer. Specific questions explore the integration of AI in school, lesson planning, and the evaluation of student performance.

4.4 Analysis Results and Interpretation

The analysis was conducted using descriptive and inferential statistics in SPSS. To analyse differences between the teachers of English and German language, as well as between primary and upper secondary school teachers, we used the t-test. For analysing correlations between individual variables, we used Pearson's correlation coefficient.

4.4.1 Using AI in Teaching: Opportunity or Threat?[4]

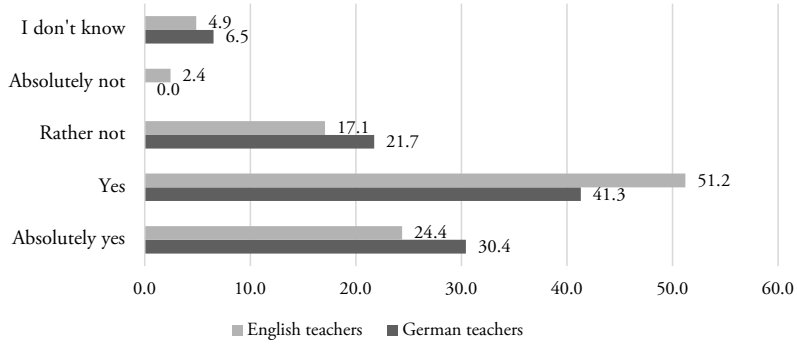

Figure 1. Percentage (f%) of teachers' responses on whether AI will significantly change teaching in the future.

[4] This question and the data in Figures 1 and 2, previously published and discussed for the whole sample in Jazbec (2024), are presented here at the teacher group level. This serves as a foundation for our focus on differences between German and English teachers, the role of the teacher, and a comparison with the Vodafone study, all in the context of the original question.

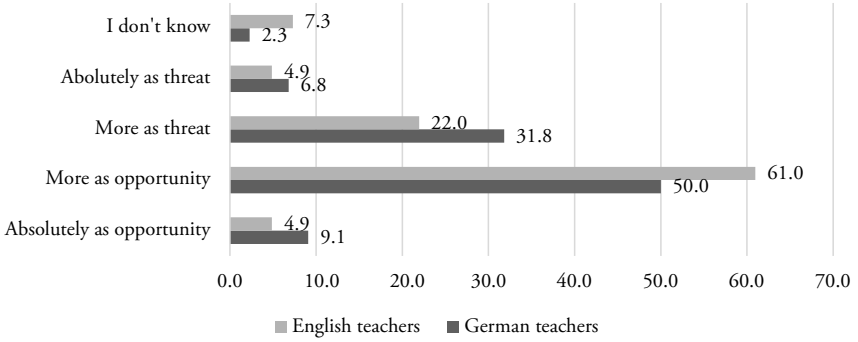

Figure 2. Percentage (f%) of teachers' responses on how they perceive the possibilities of using AI in teaching.

Figure 1 reveals that more than 80% of teachers believe that artificial intelligence will significantly change teaching in the future, while only 14% think this will not happen. Notably, German language teachers hold even stronger positive convictions ("absolutely yes") than their English language counterparts. Figure 2 demonstrates that the foreign language teachers in Slovenia are not hesitant about using AI in schools. Specifically, 59.1% of German teachers and 65.9% of English teachers view AI in schools as an opportunity or a significant opportunity, while 38.6% of German teachers and 26.9% of English teachers perceive the use of AI in schools more as a threat or an absolute threat. This group comparison suggests that German language teachers are more inclined to see AI as a potential threat compared to English language teachers.

A comparative analysis of the data with the results of the Vodafone study (Vodafone 2023), where more than half the respondents (57%) saw AI more as a threat than an opportunity, reveals significantly different attitudes among foreign language teachers in Slovenia compared to the attitudes of parents in Germany. We can only hypothesise that the observed difference stems from foreign language teachers' greater familiarity and experience with ICT tools compared to the parents surveyed in the Vodafone study (2023). Teachers have already recognised and tested the benefits of using AI and have certainly also encountered the pitfalls of AI use (e.g., written assignments as homework in foreign language teaching, etc. Additionally, it is essential to consider in the analysis of survey results that the respondents were teachers who are familiar with AI, think about it, and engage with it.

Results in Table 1 indicate that teachers of English, based on the average response to the statement regarding whether they see the use of AI in schools as an opportunity, express slightly more favour towards the idea that AI is an opportunity (M = 2.50; SD = 0.98), compared to teachers of German (M = 2.34; SD = 0.85). However, there are no statistically significant differences between teachers of German and teachers of English ($t(80)$ = -0.33; p = 0.35). This lack of significant difference is unexpected, given that most current AI tools and training data are primarily in English. One might hypothesize that this would lead English teachers to perceive AI as more readily applicable and a more significant opportunity. This finding aligns with comparative studies of AI in foreign language teaching, which often do

Table 1. The t-test for differences between teachers of English and German language in attitudes about whether the use of AI in foreign language teaching represents an opportunity.

Variable		Numerus	Mean	St. Deviation	Levene test		t-test	
		N	**M**	**SD**	**F**	**P**	**t** ***(df)***	**P**
I perceive AI and its applications in schools more as an opportunity than a threat.	Teachers GEM	44	2.43	0.85	0.35	0.55	-0.33 *(80)*	0.36
	Teachers ENG	38	2.50	0.98				

not distinguish between target languages, or focus primarily on English (e.g. Yuan 2024; Du and Daniel 2024).

4.4.2 Using AI in Teaching: Perspectives on the Role of the Teacher and Its Impact on Students' Learning Habits[5]

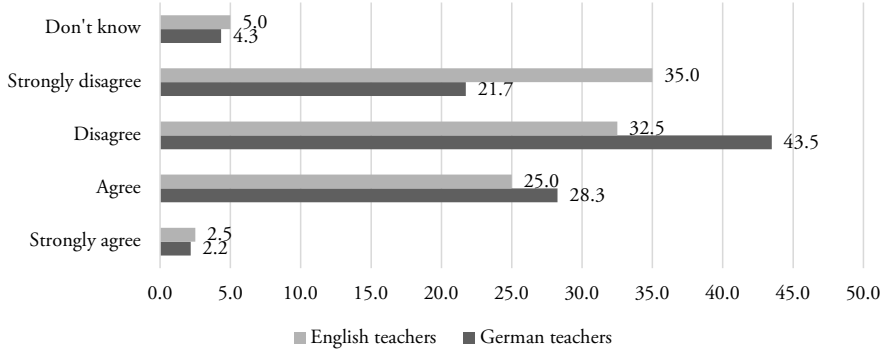

Figure 3. Percentage (f%) of teachers' responses on whether AI could, under certain conditions, provide better instruction in schools than teachers (with natural intelligence).

The data in Figures 3 and 4 provide insight into the perspectives of English and German teachers regarding the role and potential of artificial intelligence (AI) in educational contexts. Regarding the potential capability of AI to deliver superior teaching under certain conditions, it is evident that teachers across both language groups display considerable scepticism. Overall, 68.2% of foreign language teachers surveyed disagree or strongly disagree with the assertion that AI could surpass human teachers in instructional effectiveness. Conversely, a quarter (25.4%) of respondents across both groups recognise that, under specific circumstances, AI

[5] The data in Figures 3 and 4 were published in Jazbec (2024) at the level of the whole sample. They are presented here at the level of the groups because they are a starting point for analysing differences in attitudes towards AI - a factor with the potential to reshape classrooms and even the role of German or English teachers, which is the central focus of this paper.

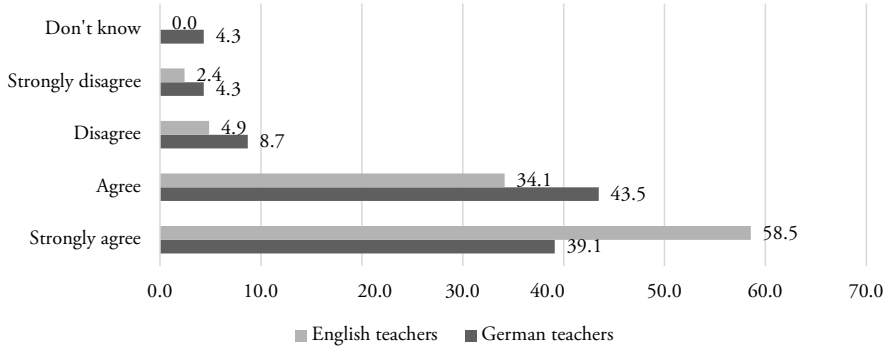

Figure 4. Percentage (f%) of teachers' responses on whether AI will not completely replace teachers in the future.

could indeed outperform human teachers. While this highlights a cautious acknowledgement of AI's instructional potential, the majority viewpoint clearly favours human teaching competences. When considering the possibility of complete replacement of teachers by AI in the future (Figure 4), there is an even stronger consensus across both teacher groups. An overwhelming 85.5% of teachers reject the notion of full AI replacement of human teachers, underscoring widespread confidence in the irreplaceability of human educators.

Comparatively, these results align closely across both English and German teacher groups, illustrating a shared perception among language educators. Both groups express strong reservations about AI fully replacing human instructors, yet both cautiously acknowledge AI's supplementary role, contingent upon specific educational conditions. This comparative analysis underlines that perspectives concerning AI's instructional role appear remarkably consistent. Such unanimity may facilitate future international collaborative efforts aimed at responsibly integrating AI technologies into language education.

The results in Table 2 indicate no significant differences in opinion on whether AI could, under certain conditions, provide better instruction than teachers. For teachers of German (GEM), the mean response was 2.98 (SD = 0.88). For teachers of English (ENG), the mean was 3.16 (SD = 0.96), $t(80)$ = -0.91, p = .18, suggesting a consensus that AI might not entirely outperform teacher's instruction under existing conditions.

Concerning the opinion that AI will not completely replace teachers in the future, significant differences occurred between the two groups. Teachers of German reported a mean of 1.91 (SD = 1.03), indicating more scepticism about AI replacing teachers, whereas teachers of English reported a more optimistic viewpoint with a mean of 1.47 (SD = 0.69), $t(82)$ = 2.25, p = .01. This suggests that teachers of German language are more likely to believe that AI will not fully replace human teachers. However, the value of standard deviation in the group of German teachers is more than one, so we should interpret these results with caution.

Finally, attitudes towards AI's potential impact on student learning habits also showed no significant difference; however, the responses leaned towards a more positive view of English teachers. Teachers of German averaged 2.83 (SD = 1.06), while teachers of English averaged

Table 2 The t-test for differences in attitudes between teachers of English and German language on perspectives on the role of the teacher and its impact on student learning habits.

Variables		Numerus	Mean	St. Deviation	Levene test		t-test	
		N	**M**	**SD**	**F**	**P**	**t** ***(df)***	**P**
AI could, under certain conditions, provide better instruction in schools than teachers (with natural intelligence).	GEM	46	2.98	0.88	1.39	0.24	-0.91 *(80)*	0.18
	ENG	37	3.16	0.96				
AI will not completely replace teachers in the future.	GEM	46	1.91	1.03	1.17	0.28	2.25	0.01
	ENG	38	1.47	0.69				
AI could potentially have a more positive than negative impact on student learning habits in the future.	GEM	46	2.83	1.06	0.45	0.51	-1.03	0.15
	ENG	38	3.08	1.19				

slightly more optimistic at 3.08 (*SD* = 1.19), t*(82)* = -1.03, *p* = .15. Overall, these findings indicate varied levels of acceptance and scepticism among teachers regarding the role of AI in education. We were also interested in exploring the correlations between beliefs about the potential of artificial intelligence to improve instruction in schools, the belief that artificial intelligence will not completely replace teachers in the future, and the perception of the effects of artificial intelligence on positive changes in student learning habits.

Table 3. Means, standard deviations, reliabilities, and correlations of variables related to Perspectives on the Role of the Teacher and Its Impact on Student Learning Habits for English teachers.

	N	**M**	**SD**	**1**	**2**
1. AI could, under certain conditions, provide better instruction in schools than teachers (with natural intelligence).	40	3.15	0.95		
2. AI will not completely replace teachers in the future.	41	1.51	0.71	.06	
3. AI could potentially have a more positive than negative impact on student learning habits in the future.	41	3.10	1.17	.44**	-.12

Note. The variables are measured on a scale from 1 to 4. Higher scores reflect a greater extent of the measured variable.
*p<.05, **p<.01

Table 3 presents descriptive statistics and Pearson correlation coefficients among the three key variables for English teachers, reflecting their perspectives on AI's role in education. A statistically significant positive correlation was found between the belief that AI could provide better instruction than teachers and the belief that AI could have a more positive than negative impact on student learning habits (r = .44, p = 0.004). This finding indicates that English teachers who perceive AI as potentially superior in instructional contexts are also likely to view its influence on student learning habits optimistically.

Conversely, there was no significant correlation between the belief that AI will not completely replace teachers and the other two variables, suggesting that English teachers' concerns about AI replacing teachers are independent of their views on the quality of AI instruction and its impact on student learning.

Table 4. Means, standard deviations, reliabilities, and correlations of variables related to Perspectives on the Role of the Teacher and Its Impact on Student Learning Habits for German teachers.

	N	M	SD	1	2
1. AI could, under certain conditions, provide better instruction in schools than teachers (with natural intelligence).	46	2.98	0.88		
2. AI will not completely replace teachers in the future.	46	1.91	1.02	.09	
3. AI could potentially have a more positive than negative impact on student learning habits in the future.	46	2.83	1.06	.47**	-.01

Note. The variables are measured on a scale from 1 to 4. Higher scores reflect a greater extent of the measured variable.
*p<.05, **p<.01

Table 4 displays descriptive statistics and Pearson correlation coefficients among the three main variables for German teachers, exploring their views regarding AI's potential in education. Similarly, as in the group of English teachers, results indicate significant, quite strong positive correlation between the belief in AI's potential for providing better instruction and the belief that AI could positively affect student learning habits (r = .47, p = .000). This suggests that German teachers who have greater confidence in AI's instructional capabilities also tend to be optimistic about AI's beneficial effects on learning habits. However, no significant correlation emerged between the belief that AI will not completely replace teachers and the other measured variables (AI's instructional quality and AI's impact on learning habits). This implies that German teachers' attitudes toward the likelihood of AI replacing human teachers are not associated with their perceptions of AI's instructional effectiveness or its influence on student learning habits.

4.4.3 The Use of AI Among Students

The questionnaire focused on teachers and their opinions on the use of AI, but in one question, teachers also reflected on what they knew about the use of AI by their students.

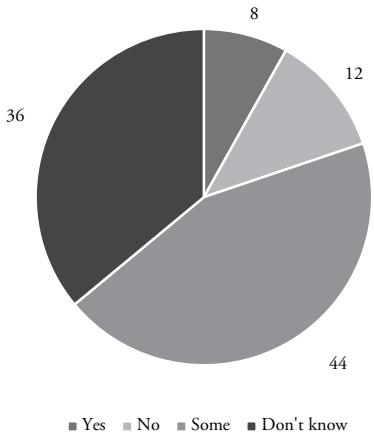

Figure 5. Percentage (f%) of teachers' responses on whether their students use AI for learning (e.g., ChatGPT).

The data in Figure 5 shows that the percentage of teachers who say they know that their students use AI (e.g., ChatGPT) in and for learning is extremely low at 8%. Slightly higher, but still low, is the percentage of teachers who say their students do not use AI in lessons (12%). The highest proportion believe that only some students use AI in and for lessons (44%), or many do not know (36%). As the teachers' responses show, the use of AI by students is very open-ended and left up to individuals, their preferences and needs. How they use AI, for what purposes, or whether they use it critically and constructively enough, or only reproductively and problematically from the point of view of authorship and knowledge acquisition, are questions that will need to be answered in the future, and the systemic basis for doing so will also need to be prepared.

Table 5. The t-test for differences between primary and upper secondary school teachers on whether their students use AI for learning (e.g., ChatGPT).

Variable		Numerus	Mean	St. Deviation	Levene test		t-test	
		N	**M**	**SD**	**F**	**P**	**t** ***(df)***	**P**
Do your students use artificial intelligence (e.g. ChatGPT) for learning?	Primary school teachers	47	3.06	0.87	0.16	0.69	-0.48 *(99)*	0.31
	Upper secondary school teachers	54	3.15	0.88				

The analysis of the data on the differences between secondary and primary school teachers' knowledge of student use of AI showed that there were no statistically significant differences

(t (99) = -0.48; p = .31). These findings are surprising, as we expected secondary school teachers to be more familiar with student use of AI than primary school teachers. Although the mean values show that secondary school teachers are slightly more familiar with it, the differences between them and primary school teachers are not significant.

5 Conclusion

In this paper, starting from the case of humanoid robot teachers and the ubiquity of AI in our lives and schools, we discuss the conceptual framework of AI, including its concept, evolution and changes that are reflected in the field of education. This theoretical background was illuminated by empirical data on the perceptions of foreign language teachers (English and German) of AI in school, particularly in foreign language learning and teaching, and by empirical data on differences between perceptions of attitudes towards AI according to the teacher's professional profile.

AI, AI-powered tools, and humanoid robots are posing major challenges for schools, teachers, students, and decision-makers. Given their capabilities, their rapid growth, and the disruptive changes they bring, AI seems to have become a permanent part of the education landscape. In addition to the development of AI, there is an intense debate at the discursive level, such as definitions of AI, analyses of the developmental phases of AI, meta-studies on AI research (in schools), and several studies that address the technological, social, psychological, anthropological, and philosophical dimensions of the impact of AI on humans.

Foreign language teaching has always been supported by various media, and AI is another one that is profoundly shaping and changing foreign language teaching. AI supports the user in solving linguistic and non-linguistic problems efficiently, quickly, and often too "elegantly." We sought to shed empirical light on all these theoretical orientations, assumptions, and experiences with AI in school from the perspective of the direct actors, i.e., foreign language teachers of English and German. The results of the study, despite the limitations we have identified, provide an illustration of and orientation for further work and research.

The findings reveal diverse perspectives among teachers regarding the role of AI in education. The majority believe that AI will significantly influence teaching in the future. German language teachers tend to express stronger opinions than English teachers, although both groups appear open to integrating AI in educational settings. Slightly more English teachers perceive AI as having potential, while a higher percentage of German teachers view it as a potential threat; however, these differences are not statistically significant. Despite some reservations, both groups demonstrate cautious optimism, viewing AI as a supportive tool rather than a replacement for human educators. The prevailing view is that AI will not replace teachers but can enhance teaching practices when implemented effectively. The study did not find substantial differences between English and German teachers in how they perceive AI's potential to improve instruction. German teachers were more likely to believe AI could not fully replace human teaching, though this should be interpreted with caution, given the standard deviation observed in the data. Teachers' understanding of students' use of AI remains limited. Many are unsure whether students are using AI at all. There were no statistically significant differences between primary and secondary teachers regarding this awareness.

Theory and empirical data support the view that 1) AI should be seen as an effective tool, as an assistant that can optimise foreign language learning and teaching where we have all perceived gaps, e.g., individualised learning, differentiation, motivation to learn by timely feedback, and

above all support for the teacher in time-consuming, administrative tasks; and 2) that all the above theoretical background, research and empirical data (this research and Vodafone 2023) show that the role of the teacher in school, in foreign language learning, is stable, that AI currently does not pose a threat as a substitute teacher for either English or German.

When considering AI in schools and foreign language teaching, we must acknowledge and address diametrically opposed yet legitimate perspectives from both theoretical and empirical standpoints. Chomsky warns against using AI, succinctly describing it as "sophisticated high-tech plagiarism" (YouTube Chomsky 2024). The slightly younger author Hartmann, an expert and researcher on AI in foreign language teaching, draws a parallel to the German Emperor Wilhelm II, who in the early days of the automobile was convinced that it was a passing phenomenon and believed in the horse (Hartmann 2023). Connecting these viewpoints, we can concur with Chomsky's assessment of AI as sophisticated plagiarism. However, we must also recognise the validity of both Emperor Wilhelm's scepticism about technological advancement and Hartmann's assertion that AI's disruptive influence on schools, learning, and foreign language instruction is here to stay.

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