



Castledown

 OPEN ACCESS

Technology in Language Teaching & Learning

ISSN 2652-1687

<https://www.castledown.com/journals/tltl/>

Technology in Language Teaching & Learning, 6(1), 1–17 (2024)

<https://doi.org/10.29140/tltl.v6n1.1133>

ChatGPT in Foreign Language Education – Friend or Foe? A Quantitative Study on Pre-Service Teachers' Beliefs



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Abstract

Artificial intelligence becomes increasingly prominent in digital language teaching and learning and it will gain even more significance in the future of EFL education (cf. Schmidt & Strasser 2022). Therefore, it is key to explore how those who will shape this future perceive the newest development: pre-service EFL teachers. As Zheng puts it: “EFL pre-service teacher beliefs are the focus of change in the process of education” (2009), consequently their perceptions and beliefs regarding this evolving area of teaching and learning are of utmost importance. Focussing on the latest developments in ChatGPT, this paper aims to give a first insight into the potential and limitations of this AI platform from the perspectives of pre-service teachers in Germany. Therefore, this research project explores the following research questions:

- RQ1: Do student teachers consider ChatGPT relevant for their future teaching practice?
- RQ2: In which areas of language education do they see potential changes due to ChatGPT? In what ways?
- RQ3: Are there any differences in the perception of ChatGPT between tech-savvy and non-tech-savvy student teachers?

The research instrument is a combination of the “technology commitment” scale (Neyer et al. 2016) and items developed specifically for this research project. For RQ3, the analysis refers to existing preliminary work that was able to establish a relationship between technology commitment and the probability of technology application (cf. Knetzek & Christensen 2016). Based on the results of the

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survey, this paper then aims to offer new perspectives for EFL teacher education and outline concrete reflection activities that further pre-service teachers' critical engagement with AI in language education.

Keywords: foreign language education, English as a foreign language, pre-service teachers, teacher education, ChatGPT, artificial intelligence, technology commitment, beliefs, Germany

Introduction

“All teachers need to be prepared for the increasingly technology-driven future” (Kessler, 2021, p. XIV) – maybe back in 2021, Kessler's demand already seemed like a truism for many educators. With the launch of ChatGPT in November 2022, however, the travel speed towards this “technology-driven future” gained pace in an unexpected manner and, at the same time, begun opening up new horizons and potholes along the way. ChatGPT is a chatbot that was launched by OpenAI (San Francisco, CA) in November 2022, and describes itself as “a powerful machine learning software that uses the Generative Pre-trained Transformer (GPT) algorithm to generate human-like responses to text-based inputs”. As Neumann et al. put it, “the quality of ChatGPT's ‘natural speaking’ answers marks a major shift in how we will use AI-generated information in our day-to-day lives” (2023, p. 1). This transformation does not only affect business or medicine, but also education in general and (foreign) language learning in particular. To prepare educators for teaching with and about artificial intelligence and artificial intelligence-powered tools such as ChatGPT, Adiguzel et al. call for suitable professional development opportunities (2023, p. 1). We are positive that to design for appropriate learning scenarios, we first must explore the status quo and therefore conducted a study on pre-service EFL teachers' beliefs on artificial intelligence and ChatGPT. Simultaneously, our paper is a contribution to meeting the demand “for a greater number of chatbot studies in the ELT research community” (Lee et al., 2020, p. 342). Consequently, the objective of this study is to provide a perspective on the beliefs of pre-service teachers concerning the utilization of artificial intelligence, particularly ChatGPT, within the context of the EFL classrooms in Germany.

Literature Review/ Background

Artificial Intelligence and Chatbots in (EFL) Education

As the launch of ChatGPT took place in November 2022, research on its implications for education in general and for the foreign language learning context in particular is very much still at its beginning. To get a better insight into potentials and drawbacks of this technology, we widen the scope of our literature review and investigate not only ChatGPT, but also artificial intelligence-powered chatbots and artificial intelligence in general.

Beneficial Effects for Learners

With regard to ChatGPT, Schönbächler et al. state that “the chatbot can be a helpful didactic and strategic addition in the language classroom, as it allows students to learn and deepen their language skills in a safe and informal atmosphere” (2023). In their systematic review of chatbot-supported language learning, Huang et al. support this argument by highlighting that the interaction with artificial intelligence-powered chatbots can have a positive effect on language learners' willingness to communicate (2022, p. 252). This result is reinforced by Kohnke's study (2022) in which he was able to show that the integration of a chatbot in an EAP course motivated students to engage in out-of-class work and catered to individual learners' needs. In a study with Spanish learners, artificial

intelligence was shown to keep a dialogue with the students going and thereby contribute to improving their communication abilities (Vázquez-Cano et al., 2021).

Besides, Kuhail et al. refer to the potential of chatbots to tailor feedback “based on students’ performance and learning styles” (2023, p. 1007). They also report that some chatbots use scaffolding and provide learners with “gradual guidance to help them become independent learners” (2023, p. 1007). In this context, they further elaborate on most tools’ ability to give instant feedback and to perform formative assessment (*ibid.*), both of which are highly conducive to the process of language learning. Additionally, Cunningham-Nelson et al. (2019) argue that the potential of artificial intelligence to personalize learning experiences to the individual capacities of learners is one of the main reasons for increased learning motivation.

Beneficial Effects for Teachers

The advent of artificial intelligence in education does not only affect the learners’ experience, but it also brings the potential to change the teachers’ role. In one of the first studies on the influence of ChatGPT on online exams, Susnjak et al. showed that the chatbot generates such high-quality texts that it poses a “significant threat to the integrity of online exams” (2022, p. 17). They anticipate a shift towards other assessment formats such as oral exams and point out the need to create awareness of the potentials of this tool amongst educators to “ensure fair and valid assessments for all students” (*ibid.*). Xu further elucidates the potential of artificial intelligence for the teaching profession by pointing towards the technology’s capability to “greatly improve the efficiency of management and the level of decision-making” (2020, p. 290). A qualitative study by Jaiswal & Arun (2021) in India reports improved teaching skills due to the use of artificial intelligence. In the field of medical education, Aldeman et al. (2021) were able to show that the technology can stimulate creativeness and incite self-reflection in instructors and familiarizes them with adaptive teaching approaches. Moreover, artificial intelligence also offers teachers opportunities for professional development (Gunawan et al., 2021) and can reduce teachers’ workload (Chan & Zary, 2019).

In the context of teacher education, it is important to take into consideration that the degree of comfort a teacher has with the technology likely depends on training and support (Kessler, 2021). Not only does this involve the discussion of ChatGPT’s assets and drawbacks for language learning and teaching in university seminars, but it also includes giving students the opportunity to gain confidence with artificial intelligence-assisted EFL teaching in the classroom, e.g. during internships. With this in mind, Kohnke et al. (2023) propose an interesting expansion of digital competences that EFL teachers need in order to use ChatGPT efficiently and purposefully (Fig. 1).

Ethical Considerations

Even though chatbots in general and ChatGPT in particular possess great potential for education, they are also highly questioned because of their ethical limitations. To begin with, Schönbachler et al. discuss the lack of transparency regarding the sources and the algorithms behind the tool. Moreover, they elaborate on the huge energy demand that both the training of a chatbot and its use require (2023, pp. 16–17). Adiguzel et al. (2023) also criticize the “reliability and accuracy of the information” and warn about “potential biases in the data, resulting in discriminatory or misleading responses” (2023, p. 7). All these aspects need to be considered when integrating ChatGPT in the language classroom and invite critical engagement with the tool.

Additionally, in current press reports, concerns about the training processes that ChatGPT underwent to reach its present potential are voiced. OpenAI used a massive amount of online texts to train the

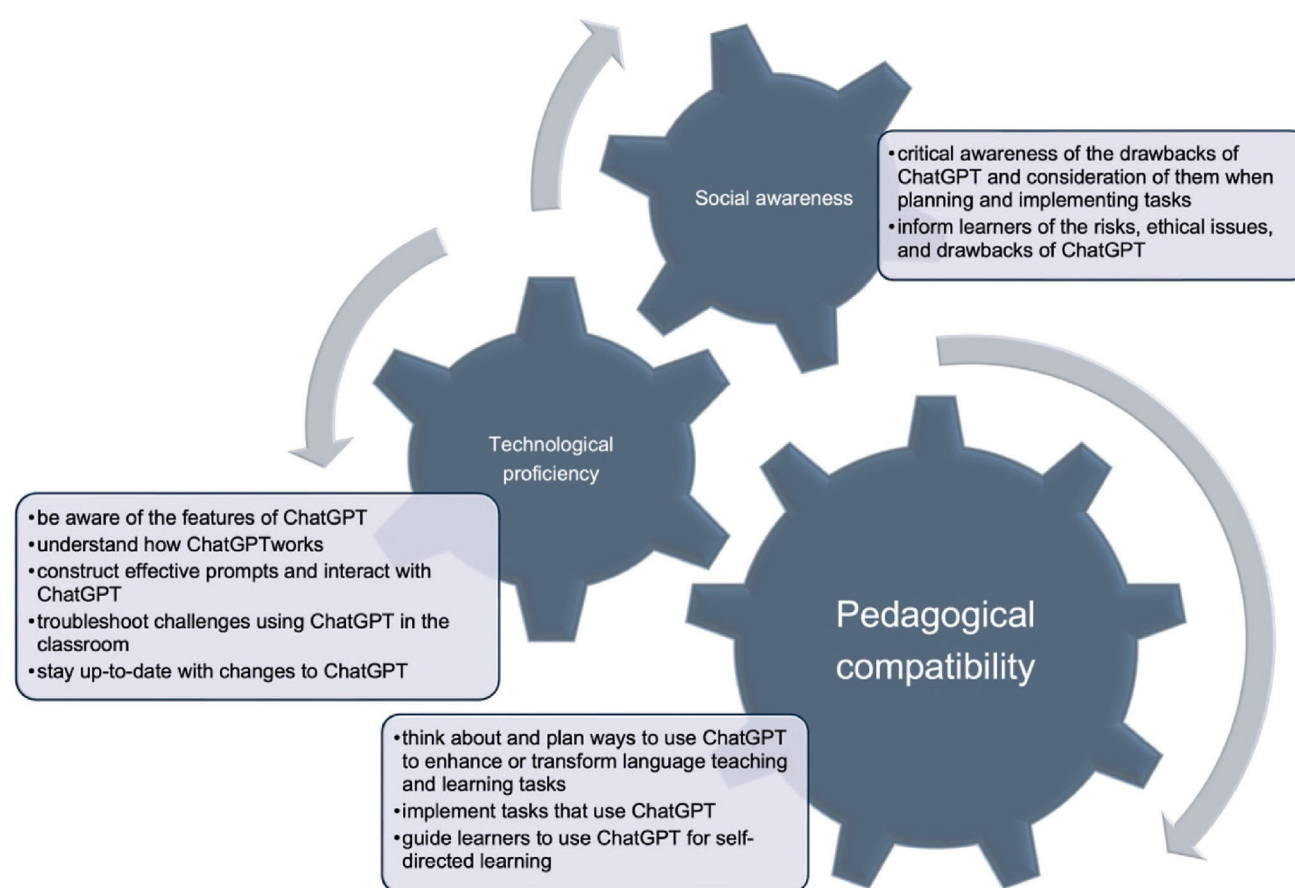


Figure 1 *Digital competences needed to use ChatGPT as an EFL teacher (based on: Kohnke et al., 2023, p. 10).*

chatbot, which now calls into question whether rights of intellectual property are being violated (De Vynck, 2023). Furthermore, questionable practices in the process of training the chatbot involving human trainers were disclosed (Perrigo, 2023). The discussed drawbacks underline the concern that artificial intelligence “can pose profound risks to society and humanity” (Future of Life Institute, 2023) which was voiced by Elon Musk, Steve Wozniak, and others in an open letter. Nevertheless, it seems unlikely that the rapid developments in artificial intelligence will come to a sudden stop. We agree with Kohnke et al. (2023) who state: “ChatGPT is here to stay” and therefore “teachers and students must develop the specific digital competencies needed to use such tools in ways that are pedagogically beneficial and ethical” (2023, p. 10).

Pre-service Teachers’ Beliefs

One major topic in teacher research is the direct influence of teacher education programs on future foreign language teachers’ beliefs about specific aspects of teaching. Numerous studies support the assumption that the programs of study had little to no influence on the beliefs of teacher candidates (Borg, 2005). Song traces this back to longstanding observations of the teacher role from the learner perspective which result in in very stable beliefs about foreign language teaching. Furthermore, she argues that teacher education often includes only short-term teaching and learning opportunities and that these are not influential enough for beliefs to change (cf. Song, 2015, p. 266). However, there are at least as many studies reporting a significant influence of teacher education programs on pre-service teachers’ beliefs (e.g. Busch, 2010; MacDonald et al., 2001).

The contradictory research findings do not allow for clear conclusions as to whether a teacher education program is influential on beliefs. Besides, the quality, design, and temporal scope of teacher education programs are also aspects that could explain the varying influence on beliefs (cf. Author1, 2022, p. 48).

Given the fact that above mentioned study results are to be interpreted in a strongly context-bound manner and, so far, no longitudinal studies on the beliefs of prospective foreign language teachers have been conducted in Germany, reliable statements on the influence of German teacher training programs on the beliefs of future English teachers are hardly possible. However, in view of the above-average length of the study program (at least five years) and the subsequent practical phase in the traineeship (between 18 and 24 months, depending on the federal state), it is to be expected that German teacher training programs nevertheless have an influence and lead to adjustments in beliefs that are conducive to the design of contemporary English teaching. Therefore, in our view, research-informed and, accordingly, well-designed study modules focusing on the role of artificial intelligence present an important step towards future-oriented EFL education. In the context of technology integration, researchers consider attitudes and beliefs of teachers and learners as crucial for the initiation and successful implementation of learning spaces enhanced by technology (Sambanis, 2020), therefore we argue that research on the status quo of pre-service teachers' beliefs about artificial intelligence and ChatGPT is needed to design for appropriate and target-group-oriented learning opportunities for future teachers at German universities.

The Quantitative Study

The aim of this study is to give an insight into pre-service teachers' beliefs regarding the use of artificial intelligence, specifically ChatGPT, in the EFL classroom in Germany. It aims to explore the following research questions:

- RQ1: Do pre-service teachers consider ChatGPT relevant for their future teaching practice?
- RQ2: In which areas of language education do they see potential changes due to ChatGPT? In what ways?
- RQ3: Are there any differences in the perception of ChatGPT between tech-savvy and non-tech-savvy student teachers?

Research Design

To answer these research questions, an online questionnaire was developed consisting of the "technology commitment scale" (Neyer et al. 2016) that was translated into English as well as additional items focussing on artificial intelligence and ChatGPT, that were designed specifically for this study and tested in a piloting phase. The target population were pre-service teachers¹ for English as a foreign language at two Bavarian universities: Ludwig-Maximilians-Universität Munich and Julius-Maximilians-Universität Würzburg. The study was introduced to students by colleagues of introductory and advanced courses at both universities by means of a presentation slide provided to colleagues and shown at the end of one or two course sessions. Students were offered incentives in the form of book vouchers for which they could register at the end of the survey. The data

¹ We use the term "pre-service teacher" to describe students that are still in the first phase of their training to become a teacher. They are in their university studies but do not yet work at a school other than in internships.

collection was conducted separately according to the data protection regulations in Germany to ensure complete anonymity of the actual survey.

Methods and Procedures

The anonymous online questionnaire consisted of closed, semi-open and open questions. In terms of content, the questionnaire was divided into four parts (see fig. 2):

Part I (general willingness to use technology) consisted of ten items of the questionnaire “technology commitment scale” (Neyer et al. 2016) in order to be able to comment on RQ3, whether tech-savvy pre-service teachers had different beliefs about artificial intelligence in general and ChatGPT in particular than non-tech-savvy pre-service teachers. For Part II (artificial intelligence in general) and Part III (ChatGPT) we designed items to provide answers for RQ1 and RQ2 (see Tab. 1). In addition, for one item we used elaborations on the Six Stages of Technology Integration (Christensen et al., 2001).

In Part II, participants were asked to comment on the stage of their learning progress in terms of integrating artificial intelligence into their teaching and learning as well as to comment on the future of language teaching using artificial intelligence. The participants were instructed in the first item of this part of the questionnaire that AI in the context of this survey is to be understood as “any AI chatbot that generates content (e.g., ChatGPT, Jasper, Google Bard)”. Part III focused on participants’ previous experiences with ChatGPT in private or professional contexts (e.g. school, university). Furthermore, we asked students to express their beliefs on the potential of ChatGPT for the foreign language classroom in terms of the creation of teaching material, the creation of exams, ideas for classroom activities, fostering reading competence, fostering writing competence, fostering critical digital literacy and increasing learners’ motivation. Going beyond that, students were also asked to name further fields of language teaching, where they could imagine ChatGPT to be beneficial. At the end of the questionnaire, we gave students the possibility to make additional comments on the topic of the survey.

The data was subjected to descriptive data analysis using SPSS 29. In addition, the Mann-Whitney U test was conducted to compare two groups in terms of technology acceptance and participants’ attitudes towards ChatGPT in the EFL classroom.

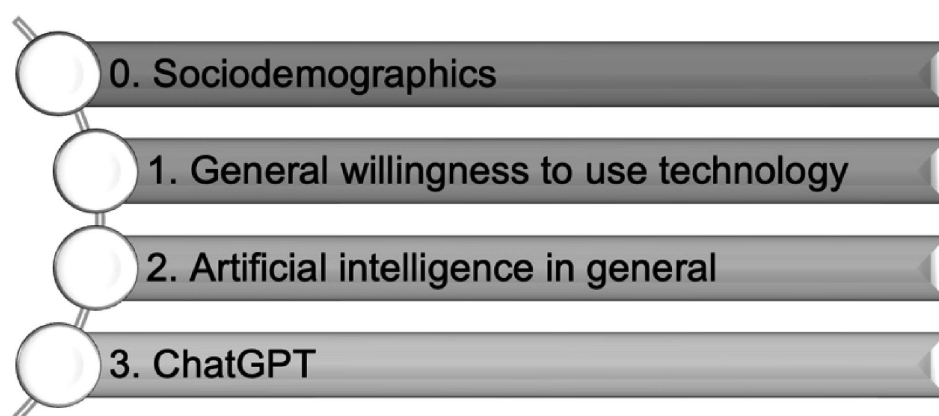


Figure 2 *Structure of the Questionnaire.*

Table 1 *Part II and Part III of the Questionnaire***Part II: Artificial Intelligence in general**

Read the description of the six stages of technology integration in the teaching and learning process. Choose the stage that best describes your progress.

- Awareness
- Learning
- Understanding
- Familiarity
- Adaptation
- Creative application

To what extent do you agree or disagree with the following statements:

- Artificial Intelligence in general is relevant for my future teaching practice
- Artificial Intelligence will change the teaching profession
- Artificial Intelligence will help to improve education
- Artificial Intelligence makes language teachers obsolete

Part III: ChatGPT

Do you know ChatGPT?

How often have you used ChatGPT so far?

To what extent do you feel confident using ChatGPT in relation to the context you've used it in?

- Private
- University
- School

Have you discussed ChatGPT in your courses at university?

Have you discussed ChatGPT in your TEFL courses at university?

To what extent do you agree or disagree with the following statements:

- ChatGPT is relevant for my future teaching practice
- ChatGPT should be banned from usage in schools
- I am curious about how ChatGPT can be used in EFL teaching and learning
- I am concerned about how ChatGPT will affect EFL teaching and learning

To what extent can you imagine using ChatGPT in your EFL classroom for the following purposes?

- creation of teaching material
- creation of exams
- ideas for classroom activities
- fostering reading competence
- fostering writing competence
- fostering critical digital literacy
- increasing learners' motivation

Could you imagine using ChatGPT for other EFL teaching purposes? If yes, please specify ...

Participants and Data Collection

The online survey took place from May 22nd until June 30th 2023 on the platform *Sosicisurvey*. A total of N = 83 pre-service teachers took part in the survey. On average students were 23.1 years old. 83.1% of participants were female, 16.9% were male (none of the participants identified as diverse). 37.3% of

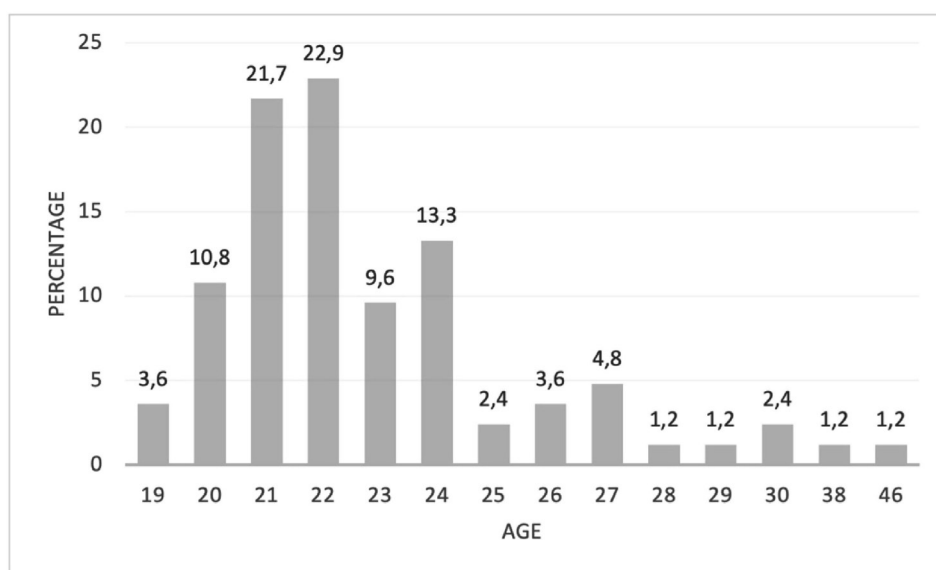


Figure 3 Sociodemographics: Age ($N = 83$; $M = 23,11$; $Sd = 3,892$).

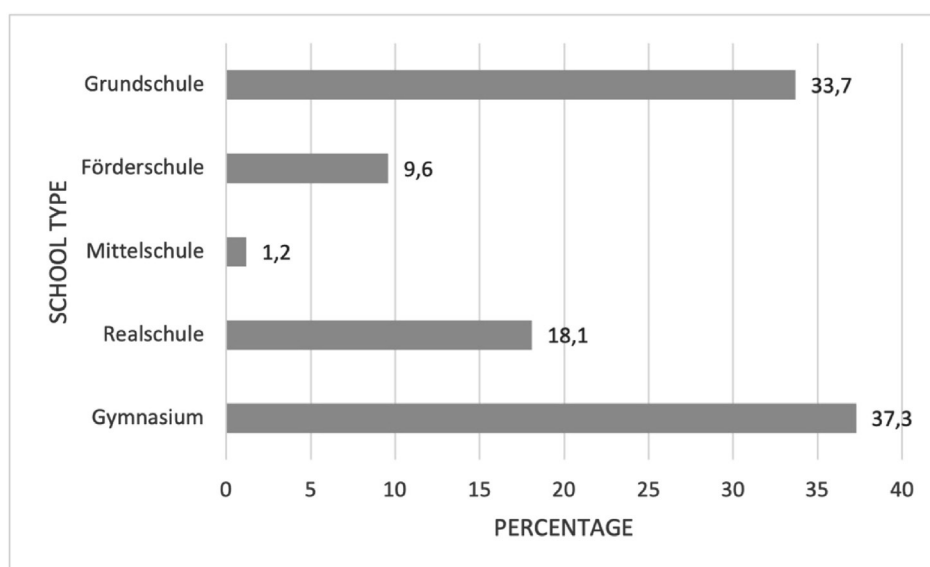


Figure 4 Sociodemographics: School types ($N = 83$).

participants studied to become a teacher for *Gymnasium*², 18.1% studied to become a teacher for *Realschule*³, 1.2% *Mittelschule*⁴, 9.6% special school/special needs education and 33.7% studied to become a primary school teacher. Figure 3 gives an overview over the age distribution in exact percentages, Figure 4 shows the participants' course of study in exact percentages.

² Highest educational attainment of secondary schools in Germany. Graduates are usually 17–18 years old.

³ Second highest educational attainment of secondary schools in Germany. Graduates attend school until tenth grade.

⁴ Third-highest educational attainment of secondary schools in Germany, where graduates attend school up to ninth (minimum compulsory schooling) or tenth grade.

Findings: Descriptive Statistics

Commencing with the general technology acceptance (5-point Likert scale *strongly disagree* – *strongly agree*) (Part I), respondents showed the highest agreement with the statements “I am very curious about new technical developments” ($M = 3.90$, $SD = 0.69$) as well as “It is up to me whether I succeed in using new technical developments-it has little to do with chance or luck” ($M = 3.71$, $SD = 1.01$). Participants also rather agreed with the statements “Whether I am successful in using modern technology depends largely on me” ($M = 3.55$, $SD = 0.80$) and “I quickly take a liking to new technical developments” ($M = 3.45$, $SD = 0.85$). Participants tended towards the middle when asked whether they would use technology more often if they had the opportunity ($M = 3.29$, $SD = 1.09$) and whether it was important for them to always use the latest technology ($M = 3.20$, $SD = 1.02$). A tendency towards the middle can also be described for the two items “If I have difficulties in using technology, it ultimately depends on me alone to solve them” ($M = 2.70$, $SD = 1.00$) and “When dealing with modern technology, I am often afraid of failing” ($M = 2.67$, $SD = 1.19$). Respondents showed the least agreement with dealing with technology as being a challenge ($M = 2.25$, $SD = 1.08$) as well as with not knowing how to use new technology most of the time ($M = 2.16$, $SD = 1.07$).

In terms of the stages of artificial intelligence-technology integration (Part II), one-fourth of respondents (25,3 %) were indeed aware that artificial intelligence-technology exists but had not used it yet (see. Fig. 5). 34,9 % of participants however stated that they are beginning to understand artificial intelligence technology and can think of specific tasks where it might be helpful. Yet, only 4,8 % of participants stated, that they could apply artificial intelligence to their teaching. When asked about artificial intelligence in teaching and learning (5-point Likert scale *strongly disagree* – *strongly agree*), participants showed the highest approval towards the statement, artificial intelligence will change the teaching profession in some way ($M = 4,20$, $SD = 0,728$, $N = 83$). Participants also expressed their agreement with artificial intelligence, in general, being relevant for their future teaching practice ($M = 3,75$, $SD = 0,794$, $N = 83$). What is more is that with these two statements, none of the participants strongly disagreed with them. Participants showed a tendency towards the center when asked if artificial intelligence will improve education ($M = 3,35$, $SD = 0,862$; $N = 83$) however, they also expressed

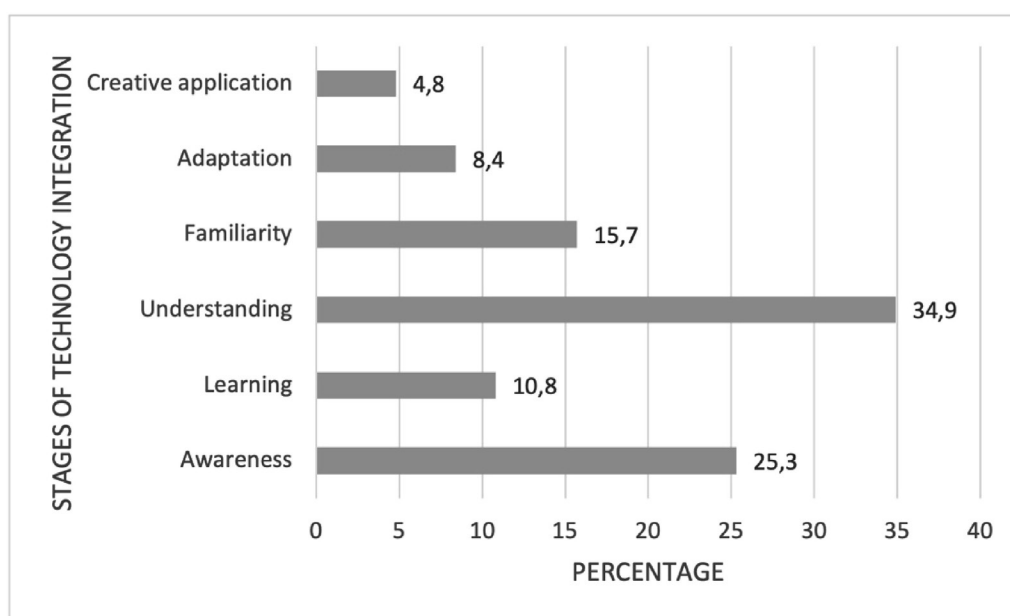


Figure 5 Item 5 ($N = 83$; $M = 2,67$; $Sd = 1,190$).

a strong disagreement with the prompt that artificial intelligence makes language teachers obsolete ($M = 1,72$, $SD = 0,888$; $N = 83$).

With regard to ChatGPT, 96,4% of participants stated that they were familiar with this tool. As for the frequency of use (see fig. 6), 8,4% had used ChatGPT frequently, 24,1% had used it occasionally, 15,7% had used it rarely, 24,1% very rarely, and another 24,1% had never used ChatGPT before. None of the participants had used ChatGPT “very frequently”.

When asked about their confidence in using ChatGPT in private, university, and school contexts (5-point Likert scale *not at all confident – very confident*), participants showed the most confidence in using ChatGPT in private settings ($M = 3,72$, $SD = 0,948$, $n = 50$) (see Fig. 7). 30 participants had not tried using ChatGPT in this context yet. Participants showed a rather similar confidence when using ChatGPT in a university context ($M = 3,13$, $SD = 1,067$, $n = 52$) with 31 participants not having tried it in this context yet. In the context of usage in schools, participants showed the least confidence however only 30 participants used it in this context so far ($M = 2,33$, $SD = 1,124$).

58,8% of participants discussed ChatGPT in university and from this percentage 48,9% of participants discussed ChatGPT in their TEFL courses. When asked about their opinion on ChatGPT for teaching and learning English (5-point Likert scale *strongly disagree – strongly agree*), participants expressed that they were curious about how ChatGPT can be used in EFL teaching and learning ($M = 4,11$, $SD = 0,693$; $N = 80$). None of the participants strongly disagreed with this statement. They also rather agreed with the statement that ChatGPT is relevant for their future teaching practice ($M = 3,70$, $SD = 0,863$, $N = 80$). With a tendency towards the center, students expressed their concerns about how ChatGPT would affect EFL teaching and learning ($M = 3,55$, $SD = 1,005$, $N = 80$). However, participants tended to disagree with a ban of ChatGPT in schools ($M = 2,34$, $SD = 1,090$, $N = 80$).

In terms of a concrete purpose of ChatGPT in the EFL classroom, participants were presented with a list of different areas of EFL teaching and learning with an option to additionally name further ideas for

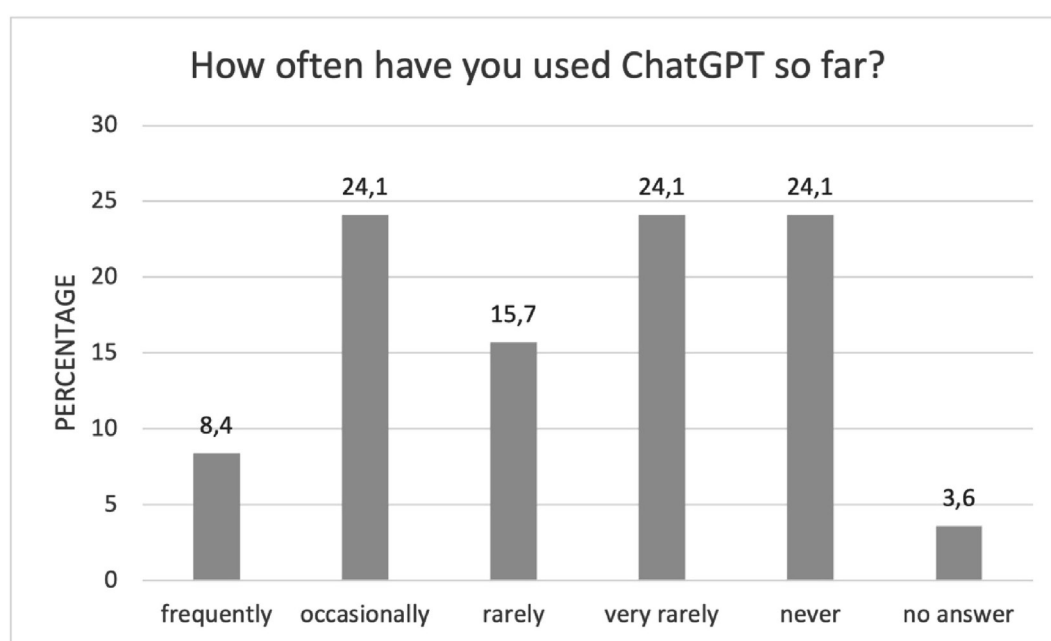


Figure 6 Item 7 ($N = 83$; $M = 2,16$; $Sd = 1,065$).

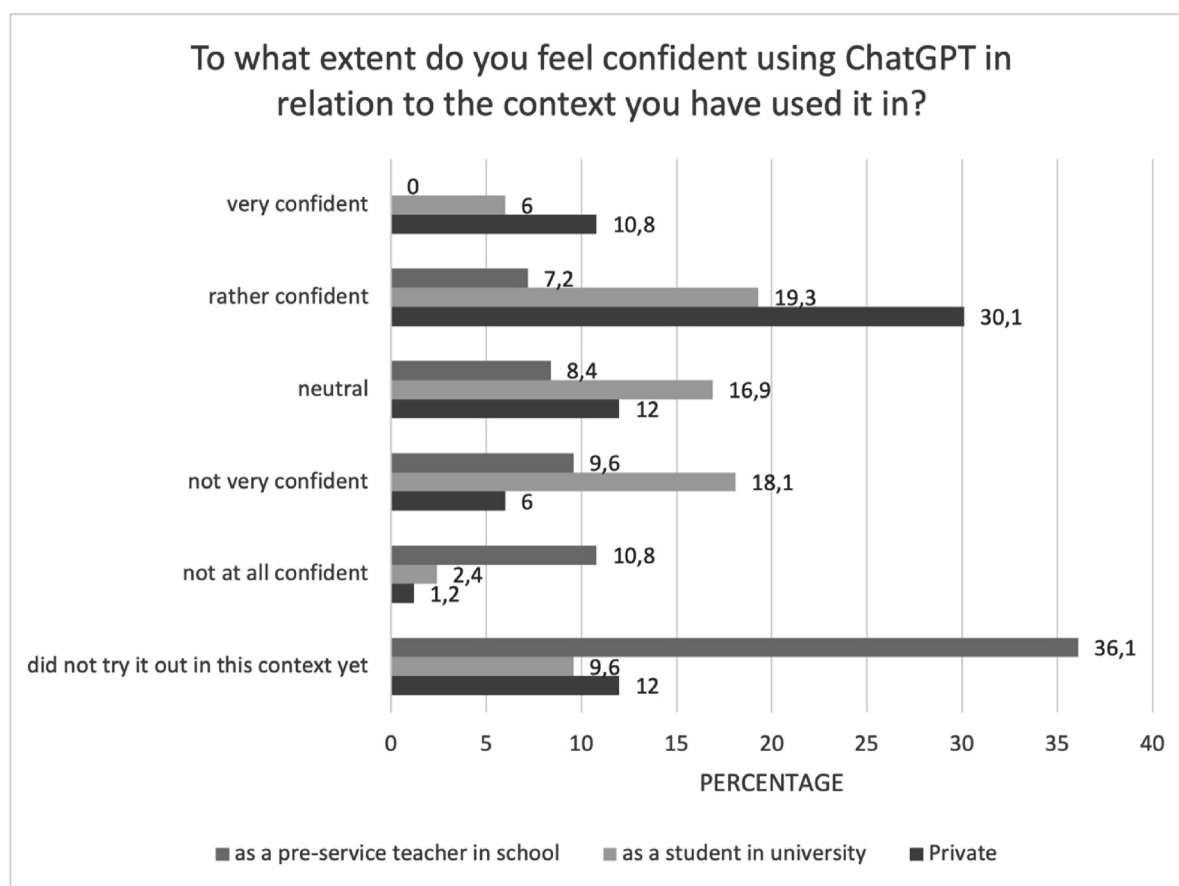


Figure 7 Item 8: Confidence in private context (1), as student in university (2) and as a pre-service teacher in school (3) ($n_1 = 50$; $M_1 = 3,72$; $SD_1 = 0,948$; $n_2 = 52$; $M_2 = 3,13$; $SD_2 = 1,067$; $n_3 = 30$; $M_3 = 2,33$; $SD_3 = 1,124$).

using ChatGPT in the EFL classroom. The most attractive purpose of ChatGPT for participants was to provide ideas for classroom activities ($n = 71$), followed by the creation of teaching material ($n = 61$) and the aspect of saving time ($n = 54$) (see Fig. 8). Less attractive was ChatGPT for fostering reading competence ($n = 25$) and for fostering writing competence ($n = 23$). Additionally, two participants opted for a free text response and named further ideas for using ChatGPT:

- get to know a topic I never taught before (C27)
- Find examples, make tasks more complex (C41)

Findings: Inferential Statistics

To answer the third research question, the items of the technology acceptance scale served as clustering variables. For the analysis, cumulative scores (min 5, max 50) of these variables were used to divide those participants who had answered all respective questions of this scale ($N = 80$) into three groups: low technology acceptance (cut-off values 5–20), medium technology acceptance (cut-off values 21–35) and high technology acceptance (cut-off values 36–50). A descriptive summary showed that no participant could be assigned to the first group whereas $n = 41$ participants could be assigned to the second group of medium technology acceptance and $n = 39$ participants could be assigned to the third group of high technology acceptance.

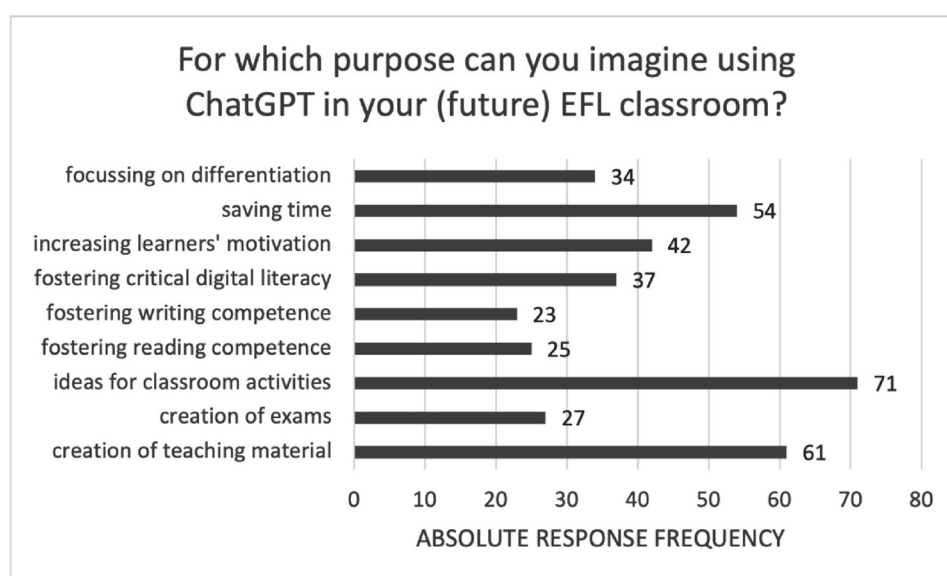


Figure 8 Usage of ChatGPT in EFL contexts (multiple answers possible).

The analyses are conducted with the following variables on beliefs about ChatGPT:

- (1) ChatGPT is relevant for my future teaching practice.
- (2) ChatGPT should be banned from usage in schools.
- (3) I am curious about how ChatGPT can be used in EFL teaching and learning.
- (4) I am concerned about how ChatGPT will affect EFL teaching and learning.

The corresponding null and alternative hypotheses are:

H_0 = The mean ranks of the high technology acceptance group and the medium technology acceptance group are equal with regard to the beliefs about ChatGPT.

H_1 = The mean ranks of the high technology acceptance group and the medium technology acceptance group are not equal with regard to the beliefs about ChatGPT.

Using the Mann-Whitney U test (Wilcoxon 1945), a conclusion is now to be drawn as to whether the two groups differ in their beliefs about ChatGPT. Although no prerequisites need to be verified for this test, it is occasionally recommended to examine the data for equal distribution by means of standardized variables (cf. Hart 2001). The distribution of the two groups differed in variable 1 (Kolmogorov-Smirnov $p < .001$), variable 3 (Kolmogorov-Smirnov $p = .033$) and variable 4 (Kolmogorov-Smirnov $p < .001$). The distribution of the two groups did not differ in variable 2 (Kolmogorov-Smirnov $p = .127$).

The results of the analyses for the four variables are as follows:

- (1) The Mann-Whitney –U test showed no statistically significant difference in the belief ChatGPT was relevant for participants future teaching practice between respondents of the high technology acceptance group and respondents of the medium technology acceptance group, $U = 746.00$, $Z = -0.557$, $p = .577$.

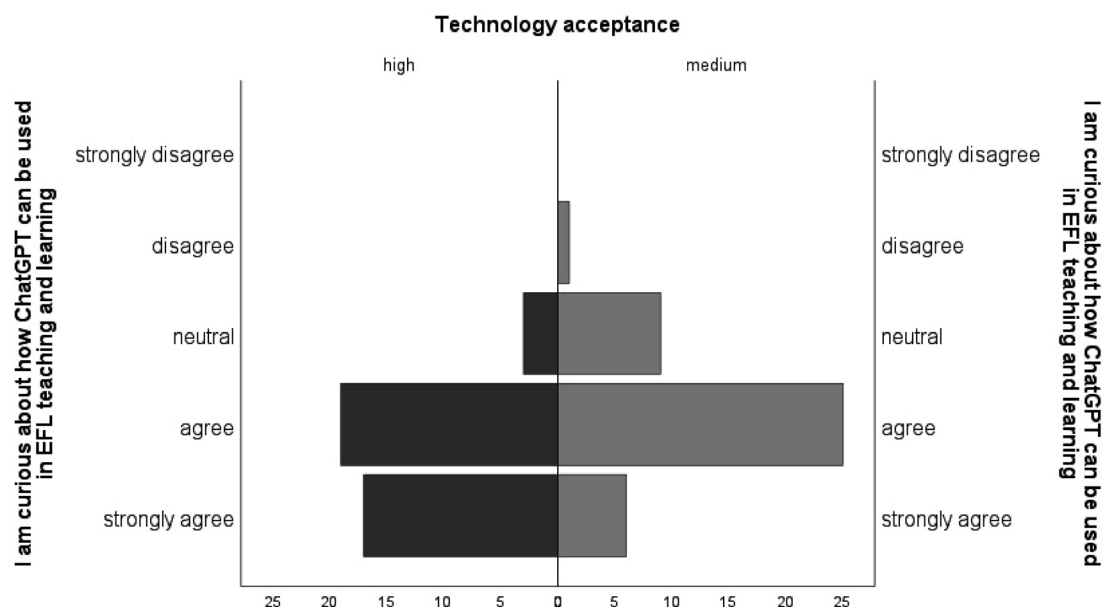


Figure 9 Population of the item "I am curious about how ChatGPT can be used in EFL teaching and learning".

- (2) The Mann-Whitney U test showed no statistically significant difference in the belief ChatGPT should be banned from usage in schools between respondents of the high technology acceptance group and respondents of the medium technology acceptance group, $U = 653.50$, $Z = -1.462$, $p = .144$.
- (3) The Mann-Whitney U test showed a statistically significant difference in the curiosity about how ChatGPT can be used in EFL teaching and learning of the respondents of the high technology acceptance group ($M_{\text{Rank}} = 47.95$) and respondents of the medium technology acceptance group ($M_{\text{Rank}} = 33.41$), $U = 509.00$, $Z = -3.113$, $p = .002$, $r = -0.348$. Figure 9 shows the population distribution of this item.
- (4) The Mann-Whitney -U test showed no statistically significant difference in the concern about how ChatGPT will affect EFL teaching and learning between respondents of the high technology acceptance group and respondents of the medium technology acceptance group, $U = 766.00$, $Z = -0.343$, $p = .732$.

With these results, the null hypothesis is dismissed and the alternative hypothesis is confirmed: The mean ranks of the high technology acceptance group and the medium technology acceptance group are not equal with regard to the beliefs about ChatGPT.

Discussion

In general, participants showed a rather positive attitude towards artificial intelligence and ChatGPT in the EFL classroom. Although one-fourth of the participants had never used artificial intelligence before, they agreed with the transformational potential of artificial intelligence and assessed these technologies as relevant to their future teaching practice ($M = 3,70$, $SD = 0,863$, $N = 80$) (**RQ1**). Furthermore, respondents were not afraid artificial intelligence might replace them as language teachers, however, they were unsure about whether this technology will improve education.

The usage of ChatGPT currently seems to be predominantly happening in private environments. Currently, university and school practices cannot yet be observed to any relevant extent in the sample at hand. However, at least in theory, ChatGPT seems to be an issue at universities, with over half of the respondents stating that they had talked about it at university, and of those, as many as half had talked about it in their TEFL courses. It can be stated that the participants were curious about the possibilities of ChatGPT for the EFL classroom and considered the chatbot to be relevant for their future as English teachers. At the same time, respondents also showed concerns at least to some extent about the impact of ChatGPT on English teaching, however they largely opposed banning it in schools. According to participants, the potential of ChatGPT for English teaching and learning currently seems to be situated outside the classroom (**RQ2**). Here, getting ideas for classroom activities ($n = 71$), the creation of teaching material ($n = 61$) together with the aspect of saving time ($n = 54$) were the top purposes of the chatbot. Activities in the context of EFL lessons, e.g. vocabulary and grammar work, did not yet seem to be relevant.

In terms of differences between respondents of a high technology acceptance and a medium technology acceptance, the results showed that the general technology acceptance cannot be linked to whether students consider ChatGPT to be relevant for their future teaching practice. This finding can also be applied to the question of whether ChatGPT should be banned in schools. Here, too, there were no differences between the groups as well as in the concern as to how ChatGPT will affect EFL teaching and learning. A different distribution of responses can be detected regarding the curiosity about the possibilities of ChatGPT for EFL teaching and learning. Here, respondents in the high technology acceptance group showed a significantly higher curiosity about the possibilities of ChatGPT for EFL teaching and learning than respondents of the medium technology acceptance group ($U = 509.00$, $Z = -3.113$, $p = .002$, $r = -0.348$) (**RQ3**). Thus, students with a higher perceived self-efficacy towards technology had a greater curiosity about the possibilities of ChatGPT for English language teaching than students with a correspondingly lower perceived self-efficacy.

Implications and Conclusion

All in all, we were able to show that in the given sample the general attitude towards artificial intelligence and ChatGPT and their role in foreign language education was largely positive which was paired with a rather advanced technology acceptance. The pre-service EFL teachers were predominately open and curious about the transformations ahead which we consider to be a good point of departure for engaging with the technology more deeply. The descriptive analysis shows that, so far, the deliberate use of artificial intelligence for educational and pedagogical purposes is still rare amongst our students. A possible reason may be the lack of guidelines from administration until now.

Our results also pinpoint the need to integrate modules on the potential of artificial intelligence for foreign language education into the university's curricula. This encompasses not just the examination of ChatGPT's strengths and limitations for language learning and teaching in university seminars but also provides pre-service teachers with the chance to build confidence in artificial intelligence-assisted EFL teaching within the classroom. In light of this, Kohnke et al.'s (2023) extension of digital competences required by EFL teachers can serve as an orientation for the design of appropriate learning goals and learning activities.

While we agree that technological proficiency and social awareness are crucial for educators, we would like to underline the great importance of the pedagogical-didactical dimension. Although a teacher might get very useful support by a tool like ChatGPT for instance when creating resources, how a lesson unfolds in the classroom with real-life pupils still depends first and foremost on the teacher and on their professional skills and only to a very limited extent on the resources. Artificial intelligence may

provide inspiration for lesson planning or save time with material creation, in the end, however, it is the teacher who knows their pupils and their needs and can create a motivating learning environment. Nevertheless, we feel that assistance by a powerful tool like ChatGPT (or similar launched artificial intelligence-based chatbots) should be utilized in order to free time resources for other pedagogical tasks in the EFL classroom that can only be performed by human intelligence, i.e. teachers. To help (future) EFL teachers navigate the abundance of possibilities brought about by artificial intelligence while at the same time relying on their own teaching expertise poses one of the new challenges of (EFL) teacher education.

Whereas only two years ago Lee et al. claimed that “chatbots still appear to be a relatively rare technology among ELT professionals, including teachers and educators” (Lee et al., 2020, p. 338), our results indicate that due to the advent of ChatGPT this might not be true anymore. Our contribution presents a starting point for posing further questions, for stimulating new research endeavors and for motivating language learners, teachers, and teacher educators to explore new realms of digital potential, embracing both the opportunities and constraints they entail.

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