



Using Conversational Artificial Intelligence for Online Learning Activities in English for Specific Purposes: a Pilot Study of Students' Experiences with Bing Chat

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Abstract

The use of conversational artificial intelligence (CAI) tools like ChatGPT or GPT-4 is gaining much attention in the context of EFL/ESP instruction and numerous recommendations for educators can be found online regarding various means of using CAI tools in language teaching. In our paper we present the results of our investigation into the use of the CAI tool Bing Chat regarding its pedagogical potential for designing online learning activities (i.e. e-tivities) in ESP instruction. At the end of the summer semester of the 2022/2023 academic year students in an ESP course were engaged in various e-tivities with the use of Bing Chat that were aimed at exploring different aspects of Business English grammar and vocabulary. After the students performed these e-tivities a survey was used to collect data on (a) their experiences with the e-tivities and (b) evaluation of selected technological attributes of Bing Chat. As an easily accessible CAI – or chatbot – that is integrated with an existing search engine, Bing Chat was found in our study to be a convenient and reliable tool for the design and implementation of instructional activities in an ESP course. Also, the e-tivities with Bing Chat that were performed received predominantly positive evaluation from the students. The observation of the authors of this paper is that, in terms of interaction with students in a higher education setting, Bing Chat displayed an adequate level of linguistic competence in using the English language, as well as satisfactory general knowledge of the English language system (grammar, syntax, vocabulary, etc.).

Keywords: higher education, online instruction, EFL, perceptions, survey

1. Introduction

The potential for innovation in language learning with technology has considerably increased after the introduction of generative artificial intelligence tools based on large language models (LLMs). The number of non-scholarly publications on how to utilize the best known of such tools, i.e. ChatGPT (or GPT-4) has been on the increase, with various tutorials that have also emerged on this subject. Scholarly papers on this topic are not so abundant but also growing in number, now that a year has passed since ChatGPT was made publicly available.

This paper presents an empirical evaluation of the use of Bing Chat (i.e. a chatbot based on a LLM and running GPT-4 in its core, but also a search engine that complements the popular Bing) in the context of performing online learning activities within an English language course for students of economics.

2. Online activities (e-tivities) in teaching EFL/ESP

Online teaching and learning activities, or *e-tivities*, are a means of synchronous or asynchronous instruction with the use of various internet-based tools and online services, including conversational artificial intelligence (CAI) tools such as GPT-4 (provided by OpenAI) and Bing Chat (provided by Microsoft). E-tivities, as a type of internet-based learning activities, can be broadly defined as “frameworks for enabling active and participative online learning by individuals and groups” [6, p. 5]. E-tivities can be conducted at different levels of education and adapted for teaching various subjects, including *English as a Foreign Language* (EFL) and *English for Specific Purposes* (ESP). In the EFL/ESP setting, e-tivities can supplement or replace face-to-face instruction and can be used for various objectives, including the development of students' language competence (e.g. vocabulary and grammar knowledge and usage), as well as conceptual knowledge and communication skills. E-tivities can also contribute to the enhancement of learning experiences of students in EFL/ESP instruction and to their acquisition of learning-to-learn skills. It must be noted that the previous work of the authors of this paper included the development and evaluation of numerous e-tivities using a wiki system and several other web 2.0 tools (for instance, see: [5]).

In the research that is presented in this paper the students were instructed to use conversational AI to perform e-tivities to explore predefined language topics. The goal of the online activities that were



conducted with students and evaluated in this paper was to draw students' attention to and increase their awareness of particular features of Business English vocabulary, phraseology and grammar (word formation in Business English, telephone English and phrasal verbs, respectively). These activities included: (a) search for content related to the Business English course with Bing Chat and checking the accuracy of collected information with the Google search engine; (b) learning about phrasal verbs with Bing Chat, including their definition and examples; (c) correcting sentences in English with Bing Chat; (d) creating multiple-choice questions for practice; (e) learning about the typical conversation structure on an example of a telephone dialogue etc.

3. The use of conversational AI in EFL/ESP instruction

After the introduction of ChatGPT conversational AI tool in November 2022 there has been a growing number of scholarly papers that analyse and illustrate its potential in EFL/ESP instruction. Like other chatbots, ChatGPT can interact with learners using the English language in the form of 'authentic' human-like conversations, while at the same time performing various language learning activities (for examples see: [3]). Its use for teaching and learning activities can provide students with assistance in a personalized learning environment with immediate feedback [7]. Despite the concerns regarding academic integrity of students, ChatGPT has the potential for innovation of pedagogy in teaching English, as was demonstrated in one qualitative study [4]. The knowledge of the English language by ChatGPT/GPT-4 is such that it can easily pass high school English language tests [2] and even assist in writing preparatory Kindle eBooks material for the TOEFL exam [1].

4. Research questions and methodology

The goals of this study were to (a) investigate the potential uses of the Bing Chat conversational AI tool and search engine in the context of EFL/ESP instruction, (b) select and evaluate various online learning activities with Bing Chat that could be beneficial for the development of English grammar, vocabulary and phraseology (in a specialized area of the ESP course in which the study was conducted).

4.1 Research questions

The following research questions were defined for our study:

- RQ1. How do students evaluate the online learning activities (activities) with the Bing Chat conversational AI and search engine in their ESP course?
- RQ2. In what ways and how much do the students expect Bing Chat and similar AI tools to be potentially useful in their further learning of the English language?
- RQ3. How do students evaluate the technological features of Bing Chat regarding its usability and user experience attributes?

4.2 Methodology

The ESP course in which the study was conducted was delivered in the summer semester of the 2022/2023 academic year at a higher education institution in Croatia. After performing several asynchronous and synchronous learning activities with the use of the Bing Chat conversational AI tool and search engine, at the end of the semester (in June 2023) the students were asked to participate in a paper-and-pencil survey. The sample in our survey (N=69) included male (31.9%) and female (68.1%) respondents aged 18-19 (92.8%) or over (7.2%), all of whom were enrolled in their first year of an undergraduate university study. Only 30.4% of the students had not used Bing Chat or similar tools (e.g. ChatGPT) prior to the use of the Bing Chat tool for learning activities in their ESP (Business English) course, but most of the students (65.2%) stated that the frequency of their prior use of such tools was less than once a week.

5. Results of data analyses

5.1 Students' evaluations of learning activities with Bing Chat

The data presented in Figure 1 represents the joint percentages or responses "4 – I agree" and "5 – I totally agree" to the survey questions that were related to students' *general evaluation of the online teaching and learning activities with Bing Chat* conversational AI and search engine. As many as 79.7% of respondents stated that doing the online activities (learning tasks) with Bing Chat *deepened their knowledge* in certain areas of the English language and 73.9% of them indicated that the activity format and tasks *helped them understand certain areas of English vocabulary*. Also, 71% of the respondents



declared that doing the online activities *allowed them to be creative*. The *motivational effect* of the use of Bing Chat was also visible since 68.1% of respondents stated that performing online activities was *stimulating for their learning* of English and 65.2% confirmed that the online learning activities with Bing Chat generally *contributed to motivating other students*. Finally, 63.7% of respondents believed that the learning activities *helped them better understand specific topics of English grammar* and 68.1% of them reported that these activities contributed to other students' acquisition of the content of the Business English course. From the data presented above it can be concluded that the online learning activities with Bing Chat in the ESP course were overall positively evaluated, especially considering that 71% of the students stated that these activities generally contributed to the success of this course.

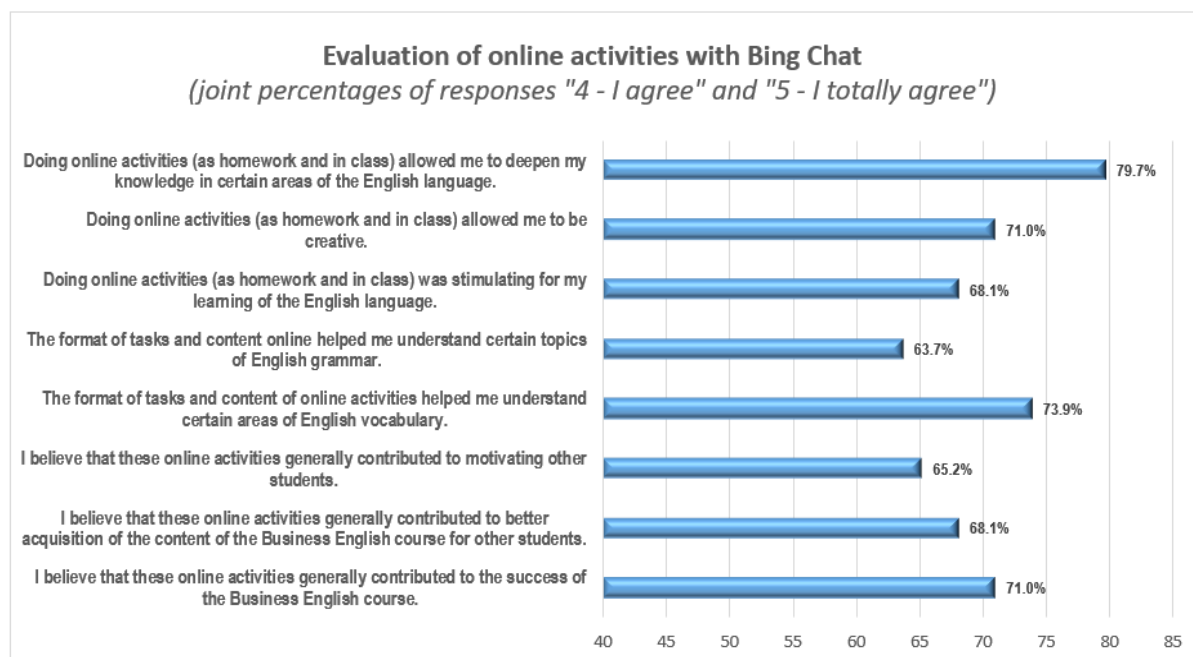


Fig. 1 Students' evaluations of online learning activities with Bing Chat (N=69)

5.2 Expected usefulness of conversational AI tools in students' further learning of English

To evaluate the students' expectations regarding the potential usefulness of using AI tools like Bing Chat in their future learning of English the students were asked to state their agreement with a series of statements that completed the sentence "I believe that the use of tools like Bing Chat, GPT and alike in my further learning of English language may...". The joint percentages of students who provided responses "4 – I agree" and "5 – I totally agree" to these survey items are presented in Figure 2. As can be concluded from these data, a vast majority of students indicated that such tools would be useful for: their better understanding of grammar rules in English (84.1%); their more precise use of professional vocabulary in English (82.6%); translating from Croatian to English, and vice versa (81.2%, respectively); improving their English spelling and more accurate application of grammar rules (81.1%, respectively); better understanding of professional vocabulary in English (75.3%) and the development of writing skills, i.e. composing different types of texts for different purposes (73.9%). From the data presented in Figure 2 it can be concluded that most of the students expected that Bing Chat and similar conversational AI tools could be beneficial to them in case they wished or needed to expand their general knowledge of English or more specific knowledge in a field like Business English. The only aspect in which the use of such tools was not recognized as potentially beneficial by students in our study was the improvement of pronunciation skills since the text-to-voice functionality of conversational AI tools was not demonstrated in the online learning activities that they were engaged in.

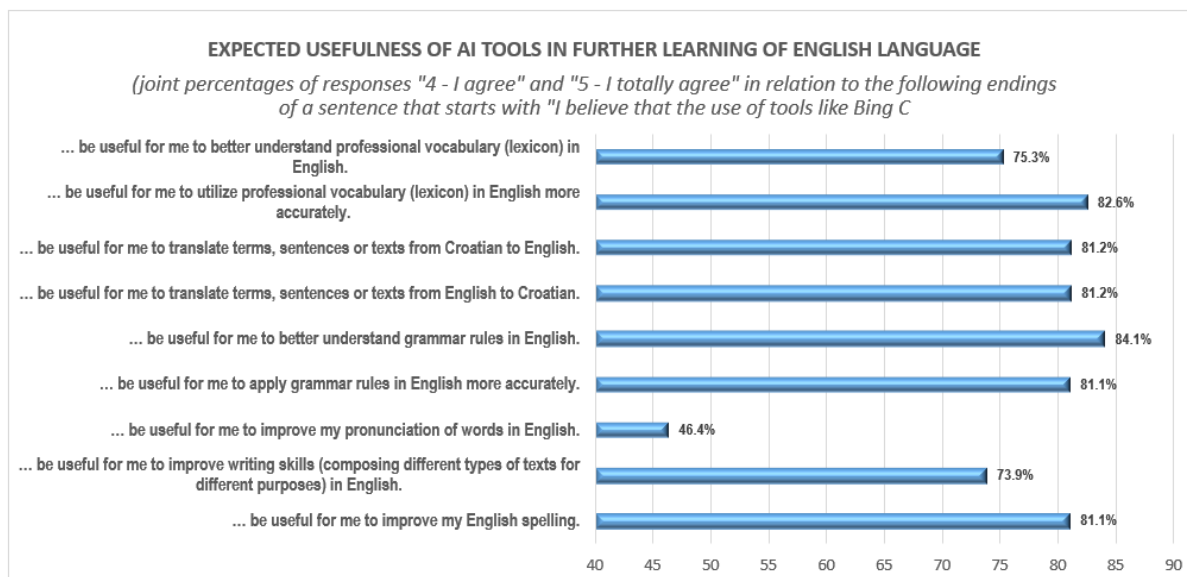


Fig. 2 Students' expectations regarding various aspects of potential usefulness of tools like Bing Chat in their further learning of English (N=69)

5.3 Students' evaluations of various technical characteristics of Bing Chat

To investigate the appropriateness of using the CAI tool Bing Chat in educational settings, items related to the constructs of *usability* (general usability, learnability, system reliability, visual design & navigation, information quality, information display) and *user experience* (cognitive involvement, trust, risk perception, personification of Bing Chat) were also included in our survey. The data presented in Table 1 illustrate that for most attributes that are related to *usability* the joint percentage of positive responses ("4 - I agree" and "5 - I totally agree") was 88.4% or above, while for the four user experience attributes those percentages were slightly lower and in the range from 59.4% to 73.9%.

Table 1 Students' evaluations of various technical characteristics of Bing Chat and the related labels for usability and user experience constructs (N=121; the percentages represent joint positive responses "4 - I agree" and "5 - I totally agree")

Technical characteristics of Bing Chat (<i>constructs</i>)	Percentage of positive responses
Bing Chat can be used for many different things (<i>perceived usefulness</i>)	97.1%
Bing Chat responds to my queries/commands as I expect. (<i>general usability</i>)	92.7%
The basics of working with the Bing Chat tool can be learned quickly. (<i>learnability</i>)	92.8%
Bing Chat worked fast enough and reliably. (<i>system reliability</i>)	88.4%
Functionalities on the Bing Chat interface are well organized and easily accessible (e.g. menus, copying, etc.). (<i>visual design & navigation</i>)	91.3%
The use of the Bing Chat service enabled the collection of accurate information. (<i>information quality</i>)	91.3%
The way information is displayed in Bing Chat responses is clear and well-structured. (<i>information display</i>)	95.6%
Using the Bing Chat service to search for information is interesting and fun for me. (<i>cognitive involvement</i>)	71.0%
The more I used Bing Chat, the more I felt that I could rely on this tool if I needed it. (<i>trust</i>)	69.5%
I am sure that there is no danger or potential threat to Bing Chat users. (<i>risk perception</i>)	73.9%
My conversations with Bing Chat resembled an exchange of online text messages with an informed person. (<i>personification of Bing Chat</i>)	59.4%



As can be concluded from the data presented in Table 1, the selected technical attributes of Bing Chat that are related to usefulness, general usability, learnability, system reliability, visual design/navigation, information quality, and information display received a rather favorable evaluation. On the other hand, the attributes that are related to user experience, like interestingness and fun to use (cognitive involvement), level of trust in the system, perception of risk during use, and resemblance of textual interaction with a real person also received a positive evaluation by a majority of students. According to these evaluation results, there seems to be no significant obstacle for most of the higher education students included in our study to further use Bing Chat in EFL/ESP language settings, which may also refer to future students. However, Bing Chat and other similar CAI tools (GPT, Bard) are constantly evolving and such evaluations have to be regularly performed.

6. Conclusion

The first appearance of advanced CAI tools based on LLMs in November 2022 (ChatGPT / GPT 3.5), and the subsequent launch of more advanced tools like GPT-4, Bing Chat and Bard, have created an imperative for educators to make a transition in student assessment methods, as well as an opportunity to (re)design the channel(s), modes and pedagogies of teaching and learning activities in order to improve their effectiveness. In our paper we have investigated how students perceive online learning activities (or e-tivities) with Bing Chat, as well their estimate of potential usefulness of Bing Chat in their future learning of English language.

In this conclusion we provide a summary of the results of our study in terms of answers to the previously defined research questions (RQ1 to RQ3). Regarding the **first research question** (RQ1) and the data presented in Figure 1, most students (in the range from 63.7% to 79.7%) positively evaluated the use of online activities with Bing Chat for their learning and use of English in educational settings. In relation to the **second research question** (RQ2) and data displayed in Figure 2, students' expectations regarding various aspects of potential usefulness of tools like Bing Chat and ChatGPT in their further learning and use of English were predominantly positive (from 73.9% to 84.1%). Finally, considering the **third research question** (RQ3) and data presented in Table 1, it can be concluded that technical characteristics of Bing Chat were positively evaluated by the students in the sense that no obstacle was identified in that area that would prevent its future use for educational purposes in higher education (in the form of online learning activities designed for students).

The authors of this paper emphasize that, due to the constant evolution of CAI tools and LLMs, their use in higher education needs to be regularly reevaluated. Also, the limitations of the research that is presented in this paper refer to the small size of the convenience sample of students of Economics and the specific educational environment of the Business English course. Therefore, the results of our study should not be generalized. However, the implemented research methodology model could be useful for future studies related to the use of CAIs for English language teaching and learning in higher education.

References

- [1] "ChatGPT Picks TOEFL Vocabulary, 10 Levels, 300 Quizzes, 3000 Words, Questions, Synonyms, Antonyms", Anon's ChatGPT Vocabulary Books, Kindle Edition, <https://www.amazon.com/ChatGPT-Vocabulary-Questions-Synonyms-Antonyms-ebook/dp/B0C623GGFZ>
- [2] de Winter, J.C. "Can ChatGPT pass high school exams on English language comprehension?", International Journal of Artificial Intelligence in Education, 2023, <https://doi.org/10.1007/s40593-023-00372-z>
- [3] Kohnke, L., Moorhouse, B. L., & Zou, D. "ChatGPT for language teaching and learning", RELC Journal (Online), 54(2), 537-550, <https://doi.org/10.1177/00336882231162868>
- [4] Kostka, I., & Toncelli, R. "Exploring applications of ChatGPT to English language teaching: Opportunities, challenges, and recommendations", TESL-EJ, 2023, 27(3), <https://doi.org/10.55593/ej.27107int>
- [5] Kovačić, A., Bubaš, G., & Zlatović, M. "E-tivities with a wiki: Innovative teaching of English as a foreign language", 14th congress of the European University Information Systems Organisation (EUNIS), Aarhus, Denmark, 2008, retrieved on October 1st, 2023, https://bib.irb.hr/datoteka/362544.EUNIS-2008_Award-submission-paper_KovacicBubasZlatovic.pdf
- [6] Salmon, G. "E-tivities: The Key To Active Online Learning", London & New York: Routledge, 2013.
- [7] Xiao, Y., & Zhi, Y. "An exploratory study of EFL learners' use of ChatGPT for language learning tasks: Experience and perceptions", Languages, 2023, 8(3), 212, <https://doi.org/10.3390/languages8030212>