

Students' Perceptions of Using ChatGPT for Academic Writing in English. Insights from a Finnish University

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Abstract

This article explores the perceptions of university students on the use of ChatGPT for academic writing in English. Participants (n = 79) are all students on mandatory English-language courses at a university Language Centre in Finland. They are predominantly first-year Bachelor's degree students from various degree programmes in different faculties. Participants' insights were collected via a survey that was administered to several intact groups during the autumn semester of 2023. The survey collected quantitative and qualitative data which were analysed and discussed in light of students' developing academic writing skills in English. The study sheds light on students' specific uses of the AI-driven tool as well as their perceptions of its impact on not only the writing process and product, but also on their own writing skills. The results indicated that students perceived ChatGPT to have above average usability, a finding which was supported and elucidated by students' free responses concerning ways in which they have used this technology. Conversely, the reasons that some students had not used it included, amongst others, a lack of need, ethical concerns and doubts about its usefulness. Given the continued development and availability of large language models such as ChatGPT, this research has clear implications for all stakeholders in higher education. In particular, by illustrating how students utilise ChatGPT in their academic writing, the study provides university language teachers with the insights needed to ensure that their course outcomes, content and assessments remain reflective of students' developing knowledge and study practices.

Keywords: academic English, ChatGPT, writing skills, student perceptions, writing process.

Streszczenie

Obserwacje studentów na temat wykorzystania ChatGPT do pisania akademickiego w języku angielskim: spostrzeżenia z fińskiego uniwersytetu

W artykule zebraliśmy obserwacje studentów uczelni na temat wykorzystania ChatGPT do pisania akademickiego w języku angielskim. Uczestnicy badania (n = 79) to studenci obowiązkowych lektoratów języka angielskiego w centrum językowym uniwersytetu w Finlandii, głównie studenci pierwszego roku studiów licencjackich reprezentujący różne programy studiów na różnych wydziałach. Wnioski uczestników zostały zebrane za pomocą ankiety, która została przeprowadzona w kilku grupach podczas semestru jesiennego 2023 roku. W ankiecie zebraliśmy dane ilościowe i jakościowe, które zostały przeanalizowane i omówione w kontekście rozwijania umiejętności pisania akademickiego w języku angielskim. Niniejsze badanie rzuciło pewne światło na konkretne sposoby wykorzystania narzędzia opartego na sztucznej inteligencji przez studentów oraz ich obserwacje dotyczące jego wpływu nie tylko na proces i produkt pisania, ale także na ich własne umiejętności pisania. Wyniki wskazują, że studenci postrzegali ChatGPT jako narzędzie o ponadprzeciętnej użyteczności, co potwierdzają wolne odpowiedzi studentów dotyczące sposobów, w jakie wykorzystywali tę technologię. Z kolei powody, przy pomocy których niektórzy studenci uzasadniali, dlaczego nie korzystają z niego, obejmowały między innymi brak potrzeby, obawy etyczne i wątpliwości, co do jego przydatności. Biorąc pod uwagę ciągły rozwój i dostępność dużych modeli językowych, takich jak ChatGPT, takie badania mają wyraźne implikacje dla wszystkich interesariuszy w szkolnictwie wyższym. Pokazując, w jaki sposób studenci wykorzystują ChatGPT w swoim pisaniu akademickim, badanie dostarcza nauczycielom prowadzącym lektoraty na poziomie uniwersyteckim wskazówek, jak cele, treść i oceny wyników kursów mogą nadal pozostać odzwierciedleniem wiedzy studentów i ich sposobów uczenia się.

Słowa kluczowe: akademicki angielski, ChatGPT, umiejętność pisania, obserwacje studentów, proces pisania.

1. Introduction

Since the official launch of ChatGPT in November of 2022, a growing body of scholarly publications has focused on the emerging role of this generative AI in various contexts, including education. Although AI use in education is not a novel topic, the ubiquitous nature of ChatGPT has made the issue nearly impossible to ignore by most educational institutions worldwide. The urgent need to draft guidelines on the use of ChatGPT made policymakers seek evidence-based decisions, which require input from scholarly research findings. This urgency drove the research agenda in 2023, which marked the beginning of ChatGPT-related studies. In 2023 alone, several systematic literature reviews on this subject set out to explore the effects of ChatGPT on learning and teaching (Baidoo-Anu & Ansah, 2023; Farrokhnia et al., 2023; Kasneci et al., 2023; Lo, 2023; Zirar, 2023). These studies critically review the benefits and limitations of ChatGPT in education in general.

At the same time, it is crucial to consider students' agency in ChatGPT use by documenting student voices. Student perceptions, opinions, attitudes, and concerns are central to understanding the general role of ChatGPT in education. A growing body of literature from across the globe recognises the importance of exploring students' perceptions related to the use of ChatGPT (e.g., Rodríguez et al., 2023). In addition, the use of ChatGPT for language learning specifically has also been investigated through the lens of tech review (e.g., Barrot, 2023) and student attitudes (e.g., Liu & Ma, 2023). However, as of the beginning of 2024, there are not enough data on various student demographics representing different stages of education, specialisation of studies, and other characteristics that might factor into differentiated policymaking. Thus, this study set out to expand the existing body of evidence on student perceptions by contributing data and insights from the Finnish higher education context, specifically in the domain of EFL studies.

The current study first builds on the existing literature examining the benefits and challenges of ChatGPT known to educators and scholars so far. Then research data is drawn from the survey results, which were analysed using a combination of quantitative and qualitative approaches. The findings of the study provide new insights into the reasons why students are eager or reluctant to use ChatGPT, which, in turn, render important pedagogical implications.

2. Literature review

2.1. Benefits and limitations of ChatGPT in education

Systematic literature reviews reveal numerous benefits of ChatGPT in education. For instance, the review of 50 articles by Lo (2023) confirms that this large language model contains potential advantages when serving as an assistant for instructors and a virtual tutor for students. More specifically, the tool promotes personalised and interactive learning by providing access to information and, most importantly, facilitating comprehensive, ongoing, and real-time feedback (Baidoo-Anu & Ansah, 2023; Farrokhnia et al., 2023; Kasneci et al., 2023). At the same time, ChatGPT has the potential to optimise the teaching workload by offering an opportunity to generate materials for instruction and assessment (Farrokhnia et al., 2023; Zirar, 2023). Thus, by offering a wide range of functions simultaneously, this generative AI tool brings the learning experience to a new level of potential efficiency, combining the advantages of other established tools in education.

However, systematic literature reviews highlight equally important inherent limitations of ChatGPT. The first is the quality of responses. Studies stress that the validity, reliability, and accuracy of material generated by ChatGPT might be compromised due to incorrect and fake information as well as biases in data training (Baidoo-Anu & Ansah, 2023; Farrokhnia et al. 2023; Kasneci et al., 2023; Lo, 2023; Zirar, 2023). Second, this large language model poses a threat to academic integrity (Farrokhnia et al., 2023; Lo, 2023). This might lead to reconceptualising the idea of plagiarism and consequently reconsidering the policies of academic integrity – in terms of either their loosening or tightening – as the functionality of this AI tool evolves with time. Existing privacy issues mentioned by Baidoo-Anu and Ansah (2023) are also a point of concern to be considered. Finally, one essential threat associated with ChatGPT is that taking generated information at face value might eventually lead to a decline in high-order cognitive skills and thus have an adverse impact on student learning (Farrokhnia et al., 2023; Zirar, 2023).

Solutions proposed to overcome existing limitations of ChatGPT in education include the following. The revision and ongoing updating of existing guidelines by educational institutions as the tool's functionality evolves is proposed as the primary step (Kasneci et al., 2023; Lo, 2023). Furthermore, policy revisions and updates need to be augmented by a clear pedagogical approach with a strong focus on critical thinking, while assigning a specific and clearly defined role for ChatGPT in the curriculum (Kasneci et al., 2023; Zirar, 2023). Hence, the coordinated actions of institutional policymakers and curriculum designers can help mitigate the challenges associated with academic integrity and information validity. Although biases in data training and privacy issues are beyond academics' control, they still need to be addressed at various levels in order to raise awareness of various stakeholders about these inherent limitations of ChatGPT.

2.2. Student voices on ChatGPT use in higher education

Much of the current literature on ChatGPT in education pays attention to student perceptions of this AI tool at various universities worldwide. Indeed, conducting research in a variety of contexts might uncover several factors that determine the ultimate role of this large language model at the tertiary level. Some studies focus on across-the-board surveys of various majors collecting large data (e.g., Singh, Tayarani-Najaran & Yaqoob, 2023), whereas others present a smaller-scale in-depth analysis of certain majors (e.g., Shoufan, 2023). Regardless of the student

sample's size, all studies recognise the benefits and limitations of ChatGPT use for academic purposes in higher education.

To begin with, studies from different world regions reveal general acceptance of ChatGPT by university students. For instance, after surveying 400 Spanish university students, Rodríguez et al. (2023) found that the degree of acceptance was largely dependent on the user experience, thus, emphasising this factor as an area of future research. Still, generally, students across majors do find ChatGPT useful or helpful while recognising its pitfalls. A study involving 388 students from two universities in the UAE by Farhi et al. (2023) confirmed ChatGPT to be useful, yet raised concerns about academic integrity. Similarly, a survey of 200 students from a Vietnamese university by Ngo (2023) revealed such benefits as saving time in information retrieval, receiving continuous feedback, and illuminating ideas, while admitting concerns over the validity of sources provided. At the same time, a study conducted with 430 students at a UK university highlighted student scepticism regarding the use of ChatGPT for academic purposes and emphasised the need for clear instructions on how and where it can be used (Singh, Tayarani-Najaran & Yaqoob, 2023).

Studies with smaller sample sizes might potentially shed light on major-specific attitudes. For example, the study by Shoufan (2023) focuses on 56 students from a computer engineering programme at one of the UAE universities. The study found that despite the students' concerns over the accuracy of the generated content, ChatGPT was perceived to be interesting, motivating, and helpful for their studies due to well-structured responses and good explanations. Such an overall positive perception might be determined by the peculiarities of the discipline. One explanation could be found in the study by Dai et al. (2023), who identified that the feedback provided by ChatGPT to data science students might be equivalent or even superior to feedback from human instructors. However, at this point, there is not enough evidence to draw solid conclusions in this domain, yet this issue seems to be an important subject for future research.

A critical issue raised in a significant number of studies on ChatGPT use in higher education pertains to the practical challenges related to tackling ethical concerns over the use of ChatGPT at universities. Since there is a consensus on the fact that these ethical concerns exist, various solutions are proposed on how to address them in practice. First, Perkins (2023: 7) points out that "it is not the student use of any AI tools that defines whether plagiarism or a breach of academic integrity has occurred, but whether any use is made clear by the student". Thus, the issue can be tackled at the classroom level by instructing students to report their use of ChatGPT. In this case, clear institutional policies should be in place. Second, ethical concerns can be dealt

with at the stakeholder level, where collaboration between institutions, publishers, and developers results in specifying unified guidelines on the ethical use of AI in academia (Bin-Nashwan, Sadallah & Bouteraa, 2023). Finally, at the global level, more research is needed into country-specific contexts and cultural norms that can influence ethical considerations (Huallpa et al., 2023). Clearly, this issue opens doors to a whole spectrum of future studies.

2.3. ChatGPT use in language learning

Before considering the application of ChatGPT in language learning, it is important to discuss whether special terminology for such a phenomenon is well established in the literature. The use of the term ‘ChatGPT-assisted language learning’ as it appears in a study by Cai, Lin and Yu (2023) seems to be very scarce in the scholarly literature, possibly because this large language model is still at the early stage of its development and is constantly evolving along with the policies governing its use within educational institutions. The term ‘AI-assisted language learning’ used by An et al. (2023) is also rare in the literature as of January 2024. At the same time, the term ‘Intelligent Computer Assisted Language Learning’ (ICALL) has existed since 1980s (e.g., Nyns, 1989). Thus, it seems reasonable to assume that coining new terms for ChatGPT use for language learning might still be premature since the phenomenon fits well within the existing field of ICALL. Therefore, for the purpose of this study, we will not use any newly created terms.

It has already been established that university students display general acceptance of ChatGPT as a tool that facilitates learning (Farhi et al., 2023; Ngo, 2023; Rodríguez et al., 2023). When it comes specifically to language learning, a study by Liu and Ma (2023) provides empirical evidence from 405 Chinese EFL learners in favour of students’ acceptance of this tool for language learning purposes outside the classroom. Furthermore, classroom-based studies also support this premise. One study of 10 EFL students from a Norwegian university confirmed their satisfaction with the usability of ChatGPT for language learning purposes (Shaikh et al., 2023). Similarly, a study by Kostka and Toncelli (2023) concerning the classroom experience of students at a US higher education institution revealed generally positive attitudes, despite several comments expressing scepticism and resistance. Overall, the findings regarding the use of ChatGPT for language learning are consistent with the findings of the studies across the university student population in various contexts.

As for specific domains of language learning, it has been found that writing is considered among the most suitable areas for ChatGPT use. In particular, tech reviews by Barrot (2023)

and Yan (2023) tested ChatGPT for its technical features applicable to L2 writing and found that this large language model is a useful tool in L2 writing pedagogy, despite its limitations in terms of information accuracy and academic integrity. In addition, an empirical study by Schmidt-Fajlik (2023) tested ChatGPT against other AI-based tools for grammar revision, i.e., Grammarly and ProWritingAid. The study found that ChatGPT provides better feedback on grammar than its counterparts. Finally, studies show that ChatGPT use in L2 writing is considered motivational by EFL students (Ali et al., 2023; Baskara, 2023).

Since writing is not limited to L2 learners, it has also been studied in a broader sense of composition courses taken by both native speakers and L2 learners. ChatGPT has been found to be helpful at various stages of the writing process: outline preparation, content revision, proofreading, and post-writing reflection (Su, Lin & Lai, 2023). The review of 30 articles related to the application of ChatGPT to writing by Imran and Almusharraf (2023) reveals that this tool can be used as a co-author by some as well as a writing assistant by others, but still, it cannot substitute a human writer due to its inherent limitations. These limitations need to be both kept in mind by the instructors and discussed with students at all stages of their learning experience (Kohnke, Moorhouse & Zou, 2023).

Collectively, these studies outline the critical role of ChatGPT in higher education in general and in language learning in particular. The studies reveal a wide array of functionality of ChatGPT for language learning and students' general acceptance of the tool. Yet, existing research stresses the tool's inherent limitations and, as a result, some students' scepticism. It has also been found that students' perceptions of ChatGPT vary across educational contexts worldwide. Thus, there is a need for more empirical evidence from various contexts to be added to the global body of knowledge on the students' voices regarding this emerging technology. Consequently, this paper is guided by the following research questions:

RQ1: Do students' opinions about ChatGPT help predict whether they have used it?

RQ2: What are students' attitudes/perceptions about the general usability of ChatGPT?

RQ3: What factors influence students' decision to use ChatGPT in connection with their English courses?

3. Methods

3.1. Participants

During the autumn semester of 2023, the authors of the present study sought to invite participants from their own teaching groups consisting of students from two faculties: Engineering and Natural Sciences (ENS) and Management and Business (MAB). It was decided to complete the data collection during class time in order to maximise the response rate and to be able to provide instructions – along with, where applicable, clarification – orally to the potential participants. All participants ($n = 79$) in the study were Bachelor-level students at a Finnish university enrolled in a mandatory English course mostly aimed at first- and second-year students. The course was pitched at a B2 level according to the Common European Framework of Reference for Languages (CEFR), and its purpose was to provide students with a foundation in academic and professional spoken and written communication skills in English. Personal characteristics, such as participants' age and gender, are beyond the scope of this study.

3.2. Data collection and analysis

In this study, a mixed-methods approach was employed to combine distinct forms of data collection and analysis, with the aim of producing a multifaceted picture of students' perceptions of ChatGPT through both quantitative and qualitative analysis. Specifically, participants were asked to complete a survey comprising four parts: part 1 (P1), part 2 (P2), part 3 (P3) and part 4 (P4). Students' consent and general background information (i.e., stage of studies and faculty membership) were collected in P1, whereas P2, P3 and P4 aimed to shed light on RQ1, RQ2 and RQ3, respectively. Additionally, students responded to binary questions related to both their awareness of ChatGPT and their previous use of this specific technology. The survey presented in English was completed during one of the sessions in the second half of the course. It was created and shared via Microsoft Forms, and participants were given up to 15 minutes to complete the survey in class. To maximise the validity of responses, students were reminded that their answers would remain completely anonymous and that there would be no consequences of any kind. This reminder was deemed important as students may have otherwise been apprehensive about disclosing their true perceptions of ChatGPT, particularly concerning its utility with respect to completing their writing tasks in English courses.

Firstly, students' responses to the binary questions were represented as percentages, using faculty membership as the main category. The purpose of this was to illustrate campus-level

differences both in the use of ChatGPT for any reason, which was the first binary question (Q1), and in its use specifically in connection with students' Language Centre English courses, which was the second binary question (Q2). In addition, a test of association between categorical variables was utilised to provide insight into the relationship between variables that can be represented in a two-by-two table (Hess & Hess, 2017), as is the case in the present research. Given the sample size and expected cell frequencies, Fisher's exact test was used instead of Pearson's chi-square test to assess the relationship between faculty membership and the dependent variables of Q1 and Q2. Additionally, in cases in which students responded negatively to either Q1 or Q2, they were asked to provide reasons for their answer. In the case of a negative response to either Q1 or Q2, students were asked to select one (or several) reasons from a list that was provided on the survey form. Students also had the option of choosing *Other* to provide a short free-form response (see Appendix, Table 1).

To gauge participants' general opinions about ChatGPT in P2, students were presented with ten Likert scale statements that were modelled on statements used in previous research focused on EFL students' perceptions of Grammarly (Ananda et al., 2021). The use of Likert scale-based instruments to elicit students' perceptions is consistent with previous EFL research (e.g., Munawaroh & Syahdan, 2021; Sultan Alshraideh, 2021; Wolf, 2013). In the present study, in order to determine which opinions best predicted whether students had used ChatGPT, survey response data were analysed via binary logistic regression in SPSS version 29, using the ten statements as covariates and Q1 as the dependent variable. Since binary logistic regression is widely used in different fields to evaluate the impact of explanatory variables on binary questions (Li, 2022), it seems to be a suitable test for providing insight into RQ1, which specifically seeks to determine the extent to which students' binary responses can be explained by their opinions. First, goodness-of-fit tests were conducted to confirm that the model was suitable for the data in question, after which the regression results comprising the p-values, the log odds values and the confidence intervals were analysed.

The suitability of binary logistic regression to shed light on RQ1 was determined via several metrics. Namely, the omnibus tests of model coefficients produced significant p-values (<.001) on all indicators, a result which is supported by the Hosmer and Lemeshow p-value (0.263), the figures for specificity (69%) and sensitivity (84%), as well as the Cox-Snell and Nagelkerke R square values of 0.330 and 0.451, respectively. Therefore, the binary logistic regression model was deemed suitable for the purpose of providing insight into RQ1 regarding all participants. Given the sample sizes in each faculty and the lack of variability in the dependent variable, particularly in the ENS faculty, it was not considered meaningful to conduct a separate binary

logistic regression for each faculty in this study. Similarly, using the statements to predict whether students had used ChatGPT specifically in connection with English courses at the Language Centre was not possible as the model was found not to fit the data.

To address RQ2, students' perceptions of the usability of ChatGPT were ascertained using the System Usability Scale (SUS), which was administered as part of the survey (P3) to all those students from the MAB and ENS faculties who had confirmed having used ChatGPT. The SUS has previously been used in studies aiming to test the usability of various types of systems across a range of fields (e.g., Hägglund & Scandurra, 2021; Kroeze et al., 2018), including for the purpose of assessing the usability of Grammarly in an EFL context (Ventayen & Orlanda-Ventayen, 2018). The usability of a product can essentially be defined as its ease of use and efficacy (Shackel, 2009), as well as the extent to which it is intelligible and operable (Aguayo & Ramírez, 2020). In the present study, the SUS scores were prepared for data analysis by reversing the negative items and following the established scoring method of multiplying the total value by 2.5 (Brooke, 1996). Subsequently, the data were tested for normality, after which the faculty-level scores were compared both to the established average score of 68 (Usability, n.d.) using a one-sample t-test and to each other using Welch's t-test as a proxy for the independent samples t-test. The scores for the whole sample were compared to the test value with a one-sample Wilcoxon signed-rank test. A one-sample t-test (or Wilcoxon signed-rank test) is suitable for comparing cohort scores to an external established mean or score, whereas the independent samples t-test (or Welch's t-test) is typically used to compare the scores of one cohort to those of another.

In the final part of the survey (P4), participants were asked to share specific details concerning their use of ChatGPT in connection with their English courses at the university's Language Centre. Students' free responses in this section constituted qualitative data that was clustered into relevant categories using the content analysis technique of clustering. As discussed by Krippendorff (2019), clustering can be harnessed as either a bottom-up or top-down approach in which the researcher identifies relevant clusters on the basis of either shared characteristics or differences that emerge within the data. This approach is relevant in the present study because students' free responses reflect various categories of interest to the researchers.

4. Results

4.1. Binary questions

All students ($n = 79$) confirmed having previously heard of ChatGPT, even if not all of them had already had an opportunity to use it. As depicted in Table 1, a greater proportion of ENS students had used ChatGPT than MAB students for not only general purposes (Q1), but also in connection with their English courses at the university's Language Centre (Q2). Figure 1 and Figure 2 illustrate the proportion of students in each faculty that had not used ChatGPT and those who had used it both in connection with their English courses as well as only for other purposes. As per Fisher's exact test, no significant association was found between faculty membership and either of the questions, although a significant positive relationship ($p = 0.044$) was observed for Q1, reflecting a greater likelihood of ENS students having used ChatGPT than MAB students.

Table 1. Use of ChatGPT

	Q1: Have used ChatGPT for any purpose	Q2: Have used ChatGPT in connection with English courses
MAB ($n = 55$)	56% ($n = 31$)	25% ($n = 14$)
ENS ($n = 24$)	79% ($n = 19$)	42% ($n = 10$)
All ($N = 79$)	63% ($n = 50$)	34% ($n = 27$)

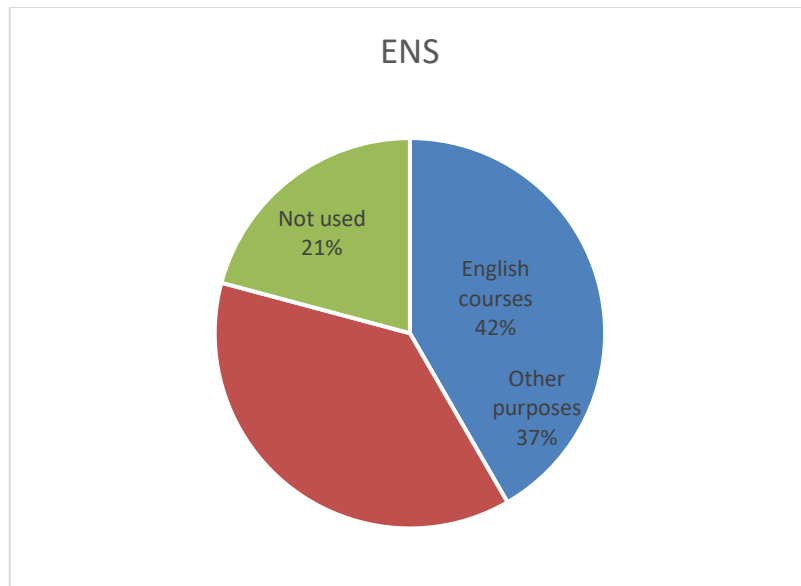


Figure 1. Use of ChatGPT by ENS students

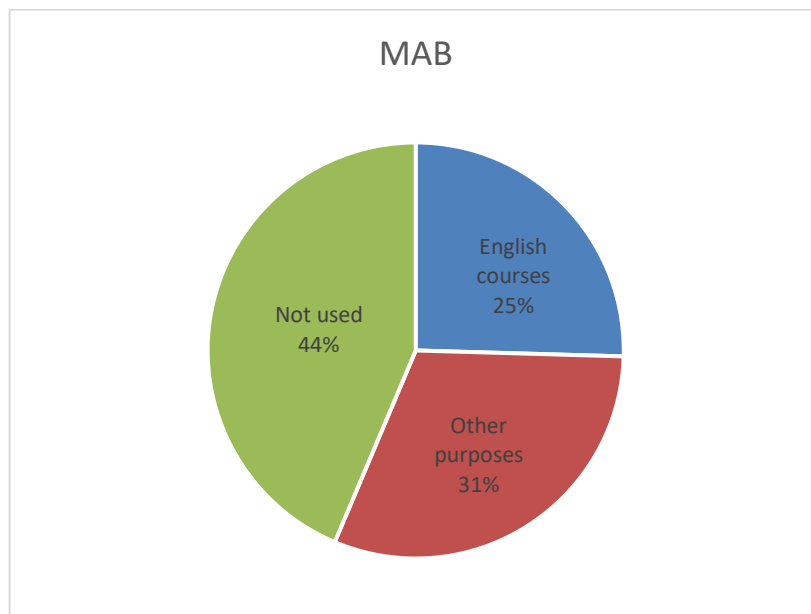


Figure 2. Use of ChatGPT by MAB students

4.2. Students' opinions about ChatGPT

As per Table 2, responses to two of the statements (S3 and S10) produced significant p-values (0.035 and 0.045) with reference to whether students had used ChatGPT for any purpose (Q1). In addition, the odds ratio values for these two statements (2.762 and 2.598) indicate that the probability of having used ChatGPT is greater than the probability of not having used it, while the confidence intervals provide further confirmation of a relationship between these two statements and the dependent variable. Although S6 also resulted in a significant p-value

(0.032), this finding was not supported by the odds ratio or confidence intervals, which were all less than 1. In summary, it can be observed that having a perception of ChatGPT as being either enjoyable to use (S10) or useful with respect to students' academic writing skills in English (S3) increased the likelihood of students having used it as well.

Table 2. Students' opinions and the likelihood of having used ChatGPT

No.	Statement text	p-value	Exp(B)	95% confidence intervals for Exp(B)	
				Lower	Upper
S1	ChatGPT is a widely used application by university students	0.868	1.077	0.449	2.586
S2	ChatGPT is suitable to use for university students	0.511	0.749	0.316	1.775
S3	ChatGPT is useful for students' academic writing skills in English	0.035	2.762	1.076	7.092
S4	ChatGPT helps students better understand the principles of academic writing in English	0.786	0.888	0.377	2.092
S5	ChatGPT helps improve students' academic writing in English	0.507	1.392	0.524	3.697
S6	ChatGPT is helpful in completing academic writing tasks in English	0.032	0.432	0.2	0.932
S7	Students can use ChatGPT through smartphones	0.091	1.772	0.912	3.444
S8	Students can use ChatGPT anytime and anywhere	0.865	1.064	0.519	2.181
S9	ChatGPT can help complete assignments faster	0.269	1.602	0.695	3.694
S10	Students enjoy using ChatGPT	0.045	2.598	1.021	6.613

4.3. Usability of ChatGPT

A total of 50 students responded to the usability section of the survey, comprising all those participants from the MAB (n = 31) and ENS (n = 19) faculties who had responded affirmatively to Q1, which concerned the use of ChatGPT for any purpose. The data were entered into SPSS where Kolmogorov-Smirnov and Shapiro-Wilk tests indicated that the faculty-level data (see Table 3) are normally distributed, albeit with uneven samples sizes and variances. The complete dataset (n = 50) was not found to be normally distributed when taken as a whole.

Table 3. Usability scores by faculty

Faculty	n	Mean	SD	Variance	p-values	
					Kolmogorov-Smirnov	Shapiro-Wilk
MAB	31	78.15	10.43	108.74	0.063	0.181
ENS	19	73.16	11.90	141.56	0.200	0.260
All	50	76.25	11.16	124.554	0.011	0.029

The means for all students (76.25), MAB students (78.15) and ENS students (73.16) were all above the established average score of 68. In fact, not only did both groups find ChatGPT to have above average usability, but 77.42% (n = 24) of MAB students and 68.42% (n = 13) of ENS students rated ChatGPT usability as higher than the established benchmark of 68. In order to determine whether these differences are significant, a one-sample t-test was conducted with 68 as the test variable. Given the uneven variance and sample sizes, Welch's t-test was utilised instead of a standard independent samples t-test to compare the MAB scores with the ENS scores. As illustrated in Table 4, the one-sample t-test regarding MAB students' scores produced one- and two-sided p-values of <0.001, accompanied by a large effect size (d = 0.973) and a power value of 0.999. As for the ENS scores, the one-sample t-test resulted in a one-sided p-value of 0.038 with a modest effect size (d = 0.434) and a power value of 0.570. The t-scores for the MAB and ENS results are also greater than their corresponding critical values of 2.042 and 1.734, respectively. Moreover, considering that the sample as a whole was not normally distributed, a one-sample Wilcoxon signed-rank test – a non-parametric test – was utilised to compare all students' results to the test value, resulting in a significant two-sided p-value of <0.001. Conversely, the results for Welch's t-test indicated that the difference between faculties was not found to be significant as per the one- and two-sided p-values of 0.071 and 0.141, respectively. To sum up, there is a significant difference between the MAB scores and the test value. Regarding the ENS scores and the test value, however, the observed significant positive difference must be considered in light of the modest effect size and low power value. Additionally, when considering all students as one sample, the difference between the results and the test value was also found to be significant. However, no significant difference was observed between the two faculties.

Table 4. One-sample t-tests of faculty differences in usability

Faculty	t	df	One-Sided p	Two-Sided p	Mean Difference	95% Confidence Interval		Cohen's d
						Lower	Upper	
MAB	5.412	30	<.001	<.001	10.145	6.320	13.970	0.973
ENS	1.890	18	.038	.075	5.158	-.577	10.892	0.434

4.4. Students' use of ChatGPT in English courses

A total of 14 students provided specific details regarding their use of ChatGPT in English courses. The analysis of students' responses resulted in the emergence of the following three clusters or categories: enhancing writing quality, the writing process and productivity, and research and information refinement. These categories are listed in Table 5, along with an example of a student's response that corresponds to each one (see Appendix, Table 2). The most popular category was *enhancing writing quality* which contained a total 12 identified uses of ChatGPT in connection with students' English courses at the Language Centre. In some cases, students provided several points in this section of the survey, which is why several categories were often identified within a single student's response.

Table 5. Reasons for using ChatGPT in connection with English courses at the Language Centre

Category identified	Examples of free responses from students
Enhancing writing quality	As an example, I've asked ChatGPT for pointers as to how to change a sentence I found clumsy and unprofessional to sound more academic.
The writing process and productivity	CGTP is an amazing tool for planning and creating rough outlines for projects.
Research and information refinement	I myself have used ChatGPT to find valid sources to use during the academic writing process and to help me come up with better search queries to use when searching for information.

4.5. Students' reasons for not using ChatGPT

Those students who responded negatively to Q1 or Q2 were asked to provide one or several reasons for not having used ChatGPT either at all (R1) or specifically in connection with their English courses at the university's Language Centre (R2). A total of 16 students provided a

response for R1 while a further 16 responded to R2. The results for R1 and R2 are depicted in Table 6 and Table 7, respectively.

Table 6. Reasons for not having used ChatGPT

Reason	Total
I have had no need to use it	12
I am not sure if I can trust the results	9
I am not sure about the ethical implications of using it	8
I am not fully aware of all its functionality	6
I do not know how to use it	5
I prefer to use other AI tools	2
<i>Other</i> : I do not wish to sign up for it	1
<i>Other</i> : I want to learn	1

Table 7. Reasons for not having used ChatGPT in connection with English courses at the university's Language Centre

Reason	Total
I have had no need to use it for this purpose	14
I am not sure about the ethical implications of using it for this purpose	9
I am not sure if it will help in completing specific tasks	8
I am not sure if it is allowed	5
Using it would have required extra work	4
I am not fully aware of all its functionality	1
I prefer to use other AI tools	1
<i>Other</i> : I feel like when using AI I don't learn anything for myself	1

As can be observed, the most popular reason in both cases was a lack of need to use ChatGPT, while concerns about the accuracy of its results as well as the possible ethical implications of using it also emerged as popular reasons for not having used the AI tool. Two free responses were provided in R1 and one in R2, as per the items labelled *Other* in the tables.

5. Discussion

5.1. Use of ChatGPT in general

The results of this study demonstrate students' diverse viewpoints about ChatGPT as a tool and highlight its impact on learning environments and classrooms. They adhere to the recently published studies on ChatGPT in education that focused on how students at different universities perceived and utilised this AI tool (Shoufan, 2023; Singh, Tayarani-Najaran & Yaqoob, 2023). Shoufan (2023) discovered that students appreciated ChatGPT's fast feedback and variety of viewpoints, which helped them improve their educational experience. Similarly, Singh, Tayarani-Najaran, and Yaqoob (2023) found that students' motivation and involvement in their studies increased dramatically when they used ChatGPT as an additional resource for comprehending difficult subjects. In addition, the results of the current study conform with the recent research that supported the tool's many advantages, such as time-saving, effective information retrieval, and idea generation (Ngo, 2023). In the present study, students' free responses (see Appendix, Table 2) underscore the role of ChatGPT in decreasing the amount of time needed to finish tasks, in helping to generate new ideas for assignments and essays, and in helping to find pertinent information. These results align with the findings of Ngo's (2023) study, which showed comparable advantages in utilising the AI tool. This aligns with the wider benefits discussed in research by Farrokhnia et al. (2023), Baidoo-Anu and Ansah (2023), and Kasneci et al. (2023), demonstrating the tool's ability in enabling personalised learning and giving prompt feedback. This is confirmed by our findings from open-ended comments, which are covered in section 5.4. Several students mentioned immediate responses and tailored help as important advantages. These results are compelling because, in this part of the survey, students were free to provide detailed thoughts about their use of ChatGPT. Collectively, these perceptions provide an understanding of ChatGPT's beneficial effects in various educational settings, while also highlighting that this is a rapidly changing field.

To some extent, the current study addresses a certain amount of the data gap concerning the diverse student demographics that represent different educational levels, study specialisations, and other characteristics. Despite being limited to Bachelor-level students, the participants in our sample represented a diverse group in terms of age, gender, and ethnicity. Additionally, the cohorts comprised a variety of academic disciplines, such as Engineering and Natural Sciences (ENS) and Management and Business (MAB). Through the analysis of these diverse subgroups, we found notable differences in how ChatGPT was utilised and perceived.

For example, the fact that more than half of the participants from the ENS and MAB faculties had used ChatGPT for any purpose demonstrates how widely students have adopted ChatGPT and how much of an impact it has had on the academic community. Compared to the MAB students, the relatively high level of ChatGPT use found with respect to ENS students having used ChatGPT for any purpose could be reflective of field-related factors. Firstly, engineering students might seek technical concepts and work on problem-solving tasks where ChatGPT could be used for quick assistance. Secondly, engineering curricula often involve programming, coding and mathematical problem solving where ChatGPT could be a useful tool for answering questions about coding. Thirdly, engineering students could incorporate ChatGPT into their workflow and use it with engineering software tools.

5.2. Students' opinions about ChatGPT

The emergence of usefulness and enjoyment as factors that helped to predict students' use of ChatGPT may not be surprising. Previous studies also emphasised the role that students' attitude plays in increasing the likelihood of them using the tool (Adıgüzel et al. 2023; Ali et al. 2023; Shoufan 2023; Siregar et al. 2023). The results may suggest that students' favourable beliefs about some of ChatGPT's features, particularly with respect to academic writing in English, may increase the chances of the tool being utilised. Thus, ChatGPT can be distinguished not only by its functional elements but also by its experiential and emotional qualities, which can play a key role in how students engage with the tool. This multifaceted characteristic of ChatGPT confirms the emotional and motivational factors that have an impact on students' choices. The interplay between teaching and technology that the results highlighted can also motivate teachers to create their material with respect to the qualities that ChatGPT offers. This link between technology and pedagogy may generate a progressive approach in which teachers take advantage of ChatGPT's unique features to improve the learning process and create a more dynamic and productive learning environment.

5.3. Usability of ChatGPT

The results of the usability survey generated insightful information about how students of ENS and MAB faculties viewed ChatGPT. The fact that students in both faculties rated ChatGPT's usability higher than the established benchmark provides further evidence that these students perceived ChatGPT as being useful. This favourable review also confirms that the tool met students' expectations and demonstrated its applicability in the educational environment of these

faculties. In addition, it highlights the tool's adaptability and cross-disciplinary versatility, offering a broader and more universal user experience. Examining some particular causes of these positive opinions and taking into account possible faculty variations may shed more light on the variables which influence students' attitudes towards the use of ChatGPT.

Furthermore, it is interesting to note that the comparison of the MAB and ENS faculties produced no significant difference, despite the considerable variations in average scores and the fact that ENS students were more likely to have used ChatGPT than MAB students. Even though at first glance the lack of statistical significance could suggest a consistent experience throughout the faculties, a closer look may reveal some nuances. The diversity of experiences and opinions across the two faculties resulted in variation in average scores. Moreover, the higher rate of ChatGPT use among ENS students suggests that those students were more experienced in using such AI tools. These results demonstrate the complexity of the variables that affect students' ChatGPT interactions and highlight the necessity for a more thorough investigation of individual variations and contextual factors.

Even though ENS students were more likely to have used ChatGPT, the difference between the mean usability scores of MAB and ENS students was not statistically significant. Since statistical results do not necessarily reveal the nuances, the qualitative answers gathered from the students may offer some additional insight. It would be interesting to further examine why MAB students rated ChatGPT's usability higher, despite their responses revealing a lower adoption rate. In addition, it would be worth examining what influenced the increased use of ChatGPT among ENS students despite resulting in a lower mean usability score. Analysing these aspects further could deepen our knowledge and help improve students' experiences of using ChatGPT in academic contexts. To sum up, these findings suggest that while MAB students in particular seem to have embraced ChatGPT's usage, the extent to which faculty-level differences exist remains unclear. Additional research and qualitative insights may clarify the reasons for these variations and offer a more thorough comprehension of the ChatGPT experiences of students.

5.4. Using ChatGPT in academic writing in English

To gain a better understanding about students' use of ChatGPT for completing tasks and assignments in academic writing in English, participants were asked to provide more details about how they had used ChatGPT in that context. As a result, three themes generated by 14 respondents emerged, demonstrating the tool's varied application.

The first theme pointed to the ability of ChatGPT to enhance writing quality. Under this theme, students particularly mentioned the benefits of ChatGPT in improving sentence structure and complexity, clarifying sentences, and summarising texts, improving word choices and grammar, and structuring texts and enhancing cohesion: “I've used ChatGPT to clarify some sentences that I'm not satisfied with and to quickly summarize main points of a text in order to filter out unnecessary parts.” In addition, students used ChatGPT to receive general feedback on their writing and to proofread for language accuracy, range and style: “Asking questions for ChatGPT gives me inspiration to improve my texts/ ChatGPT helped me to better understand what was missing from my text without especially telling me what to do”; “I have used ChatGPT to improve my choices of words to more formal ones and check for grammar errors”.

The second theme revealed some details in connection with the writing process and productivity. Students expressed their positive appreciation of ChatGPT for generating ideas, overcoming writer's block, crafting better sentences and seeking academic guidance, for summaries and clear answers to queries, for saving time and allowing to efficiently plan their writing process: “CGTP is an amazing tool for planning and creating rough outlines for projects”.

Finally, the third theme, connected with research and information refinement, showed students' value of using ChatGPT for finding sources and enhancing information search: “I myself have used ChatGPT to find valid sources to use during the academic writing process and to help me come up with better search queries to use when searching for information”.

In the context of the course the survey participants were taking, the findings suggest that ChatGPT was instrumental in completing various assignments. It was helpful for both minor and larger tasks, such as finding reliable sources, searching for specific evidence to support claims, as well as writing and editing a position paper. In summary, ChatGPT assists students in various aspects of their academic writing process in English from improving language quality and generating ideas to supporting their scholarly research. It appears to be a useful tool during different stages of the process.

5.5. Students' reasons for not using ChatGPT

In addition to the advantages and positive results associated with ChatGPT, it is important to analyse some of the tool's limitations that the previous studies indicated as well (Baidoo-Anu & Ansah, 2023; Farrokhnia et al. 2023; Kasneci et al., 2023; Lo, 2023; Zifar, 2023). For this reason, after assessing the usability of ChatGPT for general purposes and specifically in

connection with English courses, students were asked to specify why they had not used ChatGPT generally (R1) and particularly in relation to their English classes at the university's Language Centre (R2).

The results revealed that while ChatGPT could be helpful, providing students with support and a wide range of prompts, it raised valid concerns about ethics, trust, relevance, knowledge acquisition, learning autonomy, effectiveness, and extra work. These themes uncovered some of the limitations of ChatGPT use. Firstly, some students expressed uncertainty regarding the tool's reliability, voicing concerns about the accuracy or credibility of the information it provided: "I am not sure if I can trust the results". The lack of trust in the results generated by ChatGPT is a clear reflection of the limitations of the tool. Secondly, some respondents expressed concerns about the ethical implications of using ChatGPT: "I am not sure about the ethical implications of using AI tools". This suggests that the ethical considerations were among students' concerns associated with AI tools, reflecting their understanding of the responsible use of AI. It might also indicate that they were aware of the university regulations on the use of ChatGPT and wanted to be cautious about using the tool.

Many students expressed uncertainty about the ethical implications of using ChatGPT in academic English courses. Specifically, students raised concerns with respect to authenticity, plagiarism, and the ethical use of AI. Thirdly, a few respondents said that they had not known how to use ChatGPT: "I am not fully aware of all its functionality", "I do not know how to use it". This suggests that there may be a potential gap in education or training of the users. Addressing this gap through tutorials or workshops may inspire more students to experiment with and utilise the tool.

In addition, some students mentioned their desire to learn and had a positive attitude toward the AI tool. This could be an opportunity for universities and educational institutions in general to raise awareness and provide training on how to use AI tools effectively and ethically. Finally, a considerable number of respondents stated that they had not used ChatGPT because they had no need for it: "I have had no need to use it". This indicates that the tool may not be perceived as important or relevant to their current academic or personal requirements. This may also mean that they are not familiar enough with the tool and do not have enough confidence in using it. Overall, the analysis shows that there are some disadvantages of ChatGPT that may influence students' choices on not using the tool for their English classes: unperceived need, ethical concerns, uncertainty, additional work and preferences for other tools.

5.6. Students' reasons for not using ChatGPT for English studies

As to why students did not use ChatGPT specifically for their English studies, some of them expressed doubts about ChatGPT's ability to assist in completing specific assignments linked to their English classes. Responses showed that 14 students "had no need to use it for this purpose" and 9 students were "not sure about the ethical implications of using it for this purpose". This suggests a lack of understanding or knowledge regarding the usefulness of this tool in assisting with academic or language learning tasks. A few respondents (4 in total) mentioned that "using it would have required extra work", which could imply concerns about the time and effort required to learn how to use a new tool.

Additionally, some students claimed not to be fully aware of all of ChatGPT's features or to be unclear if its use was allowed. This suggests that there may be a communication or educational gap regarding application or acceptability of AI tools such as ChatGPT in educational environments. Admittedly, some students mentioned that they would rather use other AI tools. However, they did not state which tools specifically they preferred using. Understanding which tools they prioritised over ChatGPT and the reasons behind their preferences could provide a better understanding of the specific features that students valued in AI tools and help improve ChatGPT based on user expectations.

5.7. Limitations of the study

Although the study provides insightful results about how ENS and MAB university students perceive ChatGPT, it would be worth pointing out the limitations. Placing the results in perspective and conducting further research in the future might be possible if these constraints are considered. First of all, given the study has examined students' perceptions of ChatGPT in only two university faculties, the results might not be generalisable to all faculties or other university contexts. This is because there might be considerable differences related to students' age, technological skills, language acquisition and educational background, all of which might have an impact on how students perceive and use ChatGPT. For example, students who speak English as their native language might feel differently about using ChatGPT for academic writing in English compared to their non-native English-speaking counterparts. In addition, various factors might influence students' attitudes toward the use of ChatGPT. Among those factors might be, for instance, organisational culture, with its teaching strategies, learning goals, a degree of integration of technology into academic studies as well as assessment procedures.

All of these elements should be considered before the results of this study could be generalised to a larger student population.

On the other hand, to collect a larger sample, it would be recommendable to examine students' perceptions about ChatGPT in a range of other faculties and universities. By doing this, future studies might obtain a more comprehensive picture of how diverse academic environments affect students' choices. This might eliminate bias and offer broader and more insightful results which would allow researchers to detect other students' demands and experiences with ChatGPT. Furthermore, conducting a similar study across various countries, considering methods of instruction, language and societal norms, might highlight cultural variations that influence habits in using ChatGPT.

Secondly, although the study examines a range of perceptions and viewpoints, it fails to cover all the variables that could have an impact on students' engagement with ChatGPT, such as students' social status and cultural norms, their earlier experiences with AI tools, their levels of technological skills and their learning preferences. To address this limitation, a thorough approach, including a wider range of variables, would be needed. A high value in this approach is to be given to an inclusive and diverse selection of participants which might help future research adopt a holistic perspective on not only problems associated with ChatGPT but also on educational practices in general.

Thirdly, the study does not examine the ways of dealing with students' ethical concerns. To reduce students' ethical worries, it would be crucial to know more about some specific details associated with ethical use of the tool. Gaining better knowledge may assist educators in finding effective solutions, such as organising qualitative interviews or focus groups. Implementing best practices for proper use of AI tools can be conducted in collaboration with ethicists and human resources departments. These initiatives might cultivate an environment of ethically responsible users of intelligent systems, which, in turn, could develop students' ethical literacy, and promote more varied and technology-friendly educational experiences.

5.8. Pedagogical implications and recommendations

For teachers and universities incorporating ChatGPT in the learning process, these results generate several pedagogical implications and recommendations. To address the issues discussed above, it could be crucial to communicate to students and other stakeholders ChatGPT's exceptional characteristics for language learning. In these endeavours, strong collaboration across various educational organisations and cooperation between educators might

be relevant to meet real-world needs and concerns. Students might be convinced and motivated to utilise this tool in their academic course assignments if they are provided with resources and instructions on how to use it mindfully. Moreover, filling the gap in using ChatGPT for academic writing in English could be achieved by integrating the tool into academic writing courses. In order to learn more about how this integration could affect the new learning and teaching methodologies, it might be beneficial to carry out a case study, which could focus on some specific groups of students and their interactions with ChatGPT. This could be an opportunity for educators to emphasise the tool's ability to improve writing quality, enhance cohesion, and help students advance in word choices and grammar. Encouraging students to consider ChatGPT to be a creative tool, which could generate ideas and provide support in overcoming writer's block, could facilitate its wide application during all stages of the writing process. Finally, organising various workshops on the ethical use of AI tools in academic settings might enhance students' understanding about how to use ChatGPT thoughtfully. In other words, the more students acknowledge the benefits of the tool, the more confidence and courage they gain in using it. When teachers discover the technology and address the challenges associated with its usability, students can feel more comfortable integrating ChatGPT into their learning process.

6. Conclusion

This study offers insightful findings about varied attitudes and perceptions that students have toward ChatGPT and its impact on students' academic writing in English. The results highlight students' high awareness of ChatGPT and demonstrate its importance in educational settings. Despite some subtle differences in MAB and ENS students' perceptions and usage of the tool, there could be scope for further research into possible faculty-level differences as well. Different reasons for using ChatGPT in relation to students' attitudes toward the tool demonstrate a link which was identified using a binary logistic regression analysis. Students' doubts and worries about some of ChatGPT features impact the use of the tool. Similar concerns appear regarding the appropriateness of ChatGPT for English academic courses, which might be the result of a lack of clarity on how the tool functions in academic English assignments. Despite these concerns, the respondents seem to have valued the tool's usefulness in improving writing quality, providing support in the writing process, and honing knowledge and research. Furthermore, the willingness of students to use ChatGPT suggests that there should be more profound intervention focused on promoting the tool through various instructional programmes.

To overcome the limitations and further examine various factors which may influence students' attitudes toward and use of ChatGPT, additional studies would be required. Further examination may bring to light a clearer understanding of the dynamics in action, motivating teachers to provide better support to students in using ChatGPT and maximising the tool's educational impact.

Appendix

Table 1

Please specify why you have not used ChatGPT	Please specify why you have not used ChatGPT in connection with your English courses at the university's Language Centre
I do not know how to use it	I have had no need to use it for this purpose
I am not sure about the ethical implications of using it	I am not sure about the ethical implications of using it for this purpose
I have had no need to use it	I am not sure if it will help in completing specific tasks
I am not sure if I can trust the results	I am not fully aware of all its functionality
I am not fully aware of all its functionality	I prefer to use other AI tools
I prefer to use other AI tools	I am not sure if it is allowed
<i>Other</i>	Using it would have required extra work
	<i>Other</i>

Table 2

Category identified	Free responses from students
Enhancing writing quality	<ul style="list-style-type: none"> • ChatGPT has also been helpful in giving me clear answers to questions for example ""How to make a clear introduction?"" Google and other search engines are full of information. ChatGPT gives you the answer clearly in main points. I find that useful. • It can provide ideas how to structure my text more cohesive. • It has helped me to build more complex arguments and sentences. • Asking questions for ChatGPT gives me inspiration to improve my texts/ ChatGPT helped me to better understand what was missing from my text without especially telling me what to do.

	<ul style="list-style-type: none"> • It also makes word dictionaries and glossaries well. • I have used ChatGPT for example to find better words to say what I want to say. I have used Thesaurus and other dictionaries in the past, but they haven't given me the answer I was looking for. I ask ChatGPT for multiple options for words how to say for example ""go into"" and then it gives me options and I then do my own research if they are closer to the word I'm looking for. • It also helped me to remember some more academic style synonyms of words I know but had forgotten. • As an example, I've asked ChatGPT for pointers as to how to change a sentence I found clumsy and unprofessional to sound more academic. • I have used ChatGPT to improve my choices of words to more formal ones and check for grammar errors. • In addition to this I see potential in using AI to check grammar or other mistakes that may come up in the text, however I have yet to use ChatGPT in this manner. • It is good with providing me with correct spelling but also by giving me alternative words to write in more varied way. • Used it to find some misspellings
The writing process and productivity	<ul style="list-style-type: none"> • CGTP is an amazing tool for planning and creating rough outlines for projects. • For topic related things and when I have to brainstorm ideas. • I have also used ChatGPT to summarise my text. I'm aware it's a skill I need to practice in myself. However, if I give the order to ChatGPT to explain my text in for example 100 words, it keeps the content same just helps me to summarize it. • I've used ChatGPT to clarify some sentences that I'm not satisfied with and to quickly summarize main points of a text in order to filter out unnecessary parts. • It is also very effective to help move on with my writing if I get stuck. Using it can give you constant feedback and in a way, it can give you use more courage to try new things.
Research and information refinement	<ul style="list-style-type: none"> • If it is hard to come up with topic ideas or even information about the topic and if it is difficult to find specific answers from Google, ChatGPT can help with that. • I've also asked ChatGPT to suggest articles and studies which I could check to see if they fit as sources for my work. I think that using ChatGPT to provide information comes with risks of misinformation, and therefore I mainly use it to shape my sentences and point me in the direction of potentially interesting sources, of which's credibility I make sure to verify before using. • I myself have used ChatGPT to find valid sources to use during the academic writing process and to help me come up with better search queries to use when searching for information. • Sometimes I also use ChatGPT if I hear terminology, I'm unfamiliar with, to get a definition. When I ask for definitions, I make sure to ask ChatGPT to tell me where it's procured the definition from.

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