# STUDENT EXPERIENCES WITH CHATGPT IN HIGHER EDUCATION: INSIGHTS FROM A TWO-YEAR GLOBAL STUDY

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## Abstract

This study examines global student experiences with ChatGPT in higher education during the 2023–2024 and 2024–2025 academic years, based on survey data from 23,218 and 22,963 students, respectively. Focusing on usage patterns, satisfaction, and attitudes, the findings reveal a marked increase in the adoption and integration of generative artificial intelligence into academic routines. ChatGPT was most frequently used for study support, summarization, and research. As usage intensified, students reported greater satisfaction, perceiving the tool as more useful, accessible, and effective than traditional resources. These trends highlight ChatGPT's growing role in enhancing learning in higher education.

## Introduction

The introduction of the conversational chatbot ChatGPT in November 2022 marked a major step forward in the use of artificial intelligence within higher education. Developed by OpenAI in San Francisco, California, ChatGPT quickly attracted widespread interest among students due to its natural language processing abilities, which allow for seamless and intuitive communication with users (Alessandri-Bonetti et al., 2024; Mohmad, 2023). Although ChatGPT was originally designed to simulate human conversation, its functionality extends well beyond this purpose by supporting a wide variety of academic and practical tasks (Boubker, 2024; Das, 2024).

Widely regarded as one of the most advanced and rapidly adopted consumer applications of artificial intelligence, ChatGPT has received significant attention from the global education community, inspiring both strong support and serious concerns within higher education institutions (Tlili et al., 2023; Twinomurinzi & Gumbo, 2023). Supporters of ChatGPT emphasize its benefits for higher education, including the ability to provide real-time feedback, personalized learning support, cross-platform accessibility, and more effective use of open educational resources. These features are seen as having the potential to positively influence learning outcomes and skills development. At the same time, critics point to a number of risks such as data privacy issues, algorithmic bias, reduced student motivation, academic dishonesty, and the spread of false or misleading information, often

referred to as artificial intelligence hallucinations. These concerns have led to calls for stronger ethical safeguards, clearer oversight, assessment practices that prioritize originality, and more rigorous content verification to ensure the integrity of academic work (Michalon & Camacho-Zuñiga, 2023; Williams, 2024; Ravšelj, Keržič, et al., 2025).

Existing studies have identified a range of ways in which ChatGPT can be used by students. These include support for academic writing, study assistance, language learning, idea generation, research help, and personal organization (Boubker, 2024). Such uses highlight the flexibility and usefulness of ChatGPT as a tool that can support students in enhancing their educational experience. This opens up many opportunities to integrate artificial intelligence into routine academic tasks. The capabilities of ChatGPT continue to grow, especially following the release of the Generative Pre-trained Transformer (GPT-4o) in May 2024. This version introduced significant improvements in multimodal functionality and also made some features accessible to users without paid subscriptions. These advancements further establish ChatGPT as a transformative technology for educational settings (Dong et al., 2024).

According to the existing literature, students also express strong satisfaction and favorable perceptions of ChatGPT, particularly valuing its immediate, in-depth answers and support in understanding complex subjects (Ajlouni et al., 2023; Park, 2023). The tool is frequently praised for its ability to simplify difficult concepts, offer explanations in natural language, and provide guidance tailored to individual learning needs. Greater familiarity with ChatGPT and more positive attitudes toward its use are associated with increased engagement, especially among students in the final stages of their academic programs, who often rely on such tools for research and exam preparation (Pallivathukal et al., 2024). This satisfaction is largely driven by the perceived efficiency, availability, and personalized learning experience that ChatGPT offers, which helps students study more effectively and independently. Additionally, ChatGPT supports academic research by providing quicker access to scholarly materials, summarizing large volumes of information, and generating initial ideas or frameworks, thereby enhancing students' overall academic productivity and satisfaction. Nonetheless, persistent concerns remain regarding the reliability, accuracy, and potential bias of its responses, highlighting the importance of cross-verifying information with credible academic sources and promoting responsible, critical use among students (Ait Baha et al., 2024; Ravšelj, Keržič, et al., 2025).

While higher education has been extensively studied in the context of emerging digital technologies, there remains a notable gap in understanding the specific impacts introduced by ChatGPT. Most existing research has focused on broader trends in digital transformation, leaving the particular dynamics of artificial

intelligence adoption underexplored. Therefore, this study seeks to contribute to the existing body of knowledge by providing empirical insights into how students across the globe are engaging with ChatGPT in its early stages of adoption. It focuses specifically on students' usage patterns, their satisfaction with the tool, and their attitudes toward its role in academic life. The remainder of the study is structured as follows. The next section describes the methodology, including data collection techniques and analytical procedures. This is followed by a section presenting the main results, highlighting key evidence-based findings. Finally, the concluding section summarizes the key findings and reflects on their broader implications.

# Methodology

Data collection was conducted in two waves using the Global ChatGPT Student Survey, which was initiated by the Faculty of Public Administration at the University of Ljubljana, Slovenia. The first wave, carried out between October 2023 and February 2024, gathered students' initial perceptions of ChatGPT (Ravšelj, Aristovnik, et al., 2025), while the second wave, conducted between October 2024 and February 2025, explored how these perceptions evolved over time (Aristovnik et al., 2025). The survey instrument was pilot tested with students from Slovenia to improve its clarity and usability (see Aristovnik et al., 2024). It was developed in line with established best practices in survey design to ensure content relevance and practical applicability. To ensure broad international participation, the survey was made available in seven languages: English, Italian, Spanish, Turkish, Japanese, Arabic, and Hebrew. Participants were higher education students aged 18 or older who were legally capable of providing informed and voluntary consent to take part in the anonymous survey (Ravšelj, Keržič, et al., 2025). A convenience sampling strategy was employed, with the survey disseminated through classroom activities and institutional communication channels, following a commonly used approach in educational research to engage students who were easily accessible and willing to participate (Boubker, 2024; Sarstedt et al., 2018).

The online survey instrument consisted of several sections that examined dimensions both explicitly and implicitly connected to the use of ChatGPT. These included socio-demographic characteristics, knowledge and experiences, capabilities, ethical governance and concerns, satisfaction and attitude, study issues and outcomes, skills development, labour market and skills mismatch, emotions, study and personal information, and general reflections. The majority of these dimensions were assessed through closed-ended items using a 5-point Likert scale, with responses ranging from 1 (e.g., strongly disagree) to 5 (e.g., strongly agree) (Ravšelj, Aristovnik, et al., 2025). The structure of the questionnaire remained consistent across both waves of data collection, with the exception of a slight

revision to the item regarding the use of ChatGPT and other generative artificial intelligence tools. In the initial wave, students were asked exclusively about their use of ChatGPT, whereas in the second wave, the question was broadened to encompass a range of tools, including ChatGPT (OpenAI), Microsoft Copilot, Google Gemini (formerly Bard), Perplexity AI, Claude AI (Anthropic), and an open-ended option labelled "Other." While the survey addressed a wide range of topics, the present study specifically investigates students' usage patterns, as well as their satisfaction and attitudes, through a comparative perspective across two successive academic years.

The data were analysed using two primary statistical approaches. The first involved descriptive analysis through the computation of Top 2 Box (T2B) scores, indicating the percentage of respondents who selected the highest two categories ("agree" and "strongly agree") on a 5-point Likert scale. The second method consisted of an independent samples t-test, which was employed to compare mean values between students' initial and evolving perceptions of their usage patterns, as well as their satisfaction and attitudes. This parametric procedure is widely acknowledged as a reliable and standard technique for identifying mean differences between two independent groups (Rasch et al., 2007).

# Results

By the end of the first data collection wave (2023–2024), a total of 23,218 students from 109 countries and territories had taken part in the survey. In the second wave (2024–2025), participation included 22,963 students from 120 countries and territories (see Table 1). The socio-demographic profile of the participants remained largely consistent across both waves, enabling meaningful comparisons between the two datasets. In both waves, the majority of respondents were female (58.8% in the first wave and 61.5% in the second), and most were enrolled in undergraduate (first-level) study programs (83.4% and 78.5%, respectively). Most students were studying in the field of social sciences (41.4% in the first wave and 43.0% in the second), followed by applied sciences, with fewer students in natural and life sciences, as well as arts and humanities. The dominant modes of study were traditional learning (47.3% in the first wave and 42.5% in the second) and blended learning (43.2% and 49.7%, respectively), while a smaller share of students participated in fully online learning.

**Table 1**

*Socio-demographic Characteristics of the Survey Participants*

| Socio-demographic characteristics | First wave (2023-2024) | | Second wave (2024-2025) | |
|---|---|---|---|---|
| | Number (#) | Share (%) | Number (#) | Share (%) |
| **Gender** | | | | |
| Male | 9346 | 41.2 | 8649 | 38.5 |
| Female | 13365 | 58.8 | 13797 | 61.5 |
| **Level of study** | | | | |
| First | 18935 | 83.4 | 17574 | 78.5 |
| Second | 2867 | 12.6 | 4058 | 18.1 |
| Third | 912 | 4.0 | 758 | 3.4 |
| **Field of study** | | | | |
| Arts and humanities | 2740 | 12.1 | 2247 | 10.1 |
| Social sciences | 9356 | 41.4 | 9575 | 43.0 |
| Applied sciences | 7809 | 34.5 | 7899 | 35.5 |
| Natural and life sciences | 2717 | 12.0 | 2527 | 11.4 |
| **Mode of study** | | | | |
| Traditional learning | 10754 | 47.3 | 9533 | 42.5 |
| Online learning | 2159 | 9.5 | 1735 | 7.8 |
| Blended learning | 9833 | 43.2 | 11150 | 49.7 |

*Note:* Due to incomplete responses, some socio-demographic variables do not align precisely with the total number of participants in the final sample.
Source: Authors' calculations based on the Global ChatGPT Student Survey.

Since its launch in November 2022, ChatGPT has seen growing adoption among students. During the 2023–2024 academic year, 71.4% of students reported using the tool, a figure that rose to 91.1% in the subsequent year. There was also a rise in usage intensity. While 18.0% of students indicated considerable or extensive use in the first year, this percentage increased to 27.1% in 2024–2025. Nevertheless, the frequency of use differed depending on the type of task (Figure 1). Initially, students used ChatGPT most often for brainstorming, summarizing, and research support, emphasizing its function in aiding fundamental academic activities such as idea development, comprehension, and information retrieval. Tasks like academic writing, study help, translation, personal assistance, coding, and proofreading were used moderately. In contrast, tasks involving mathematical problem-solving, professional writing, and creative writing were the least commonly reported. By 2024–2025, students had adopted ChatGPT more broadly and consistently across their academic work. The most significant increases in use were for study support (an 11.3 percentage-point [p.p.] rise) and summarizing (a 10.1 p.p. rise), indicating that students increasingly recognized ChatGPT's potential for enhancing learning efficiency and managing academic workloads.
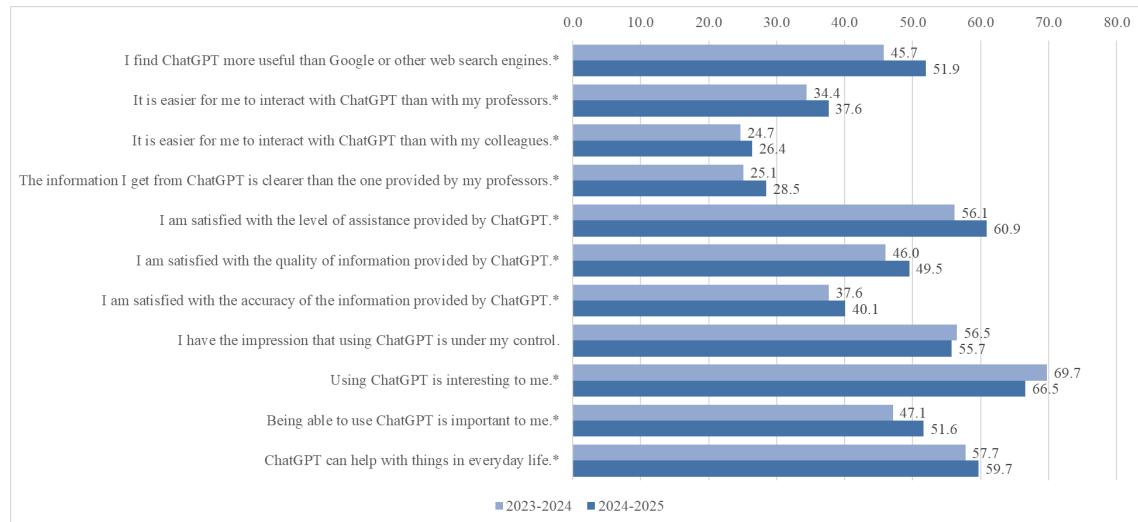
**Figure 1**

*Students' Usage Patterns of ChatGPT*
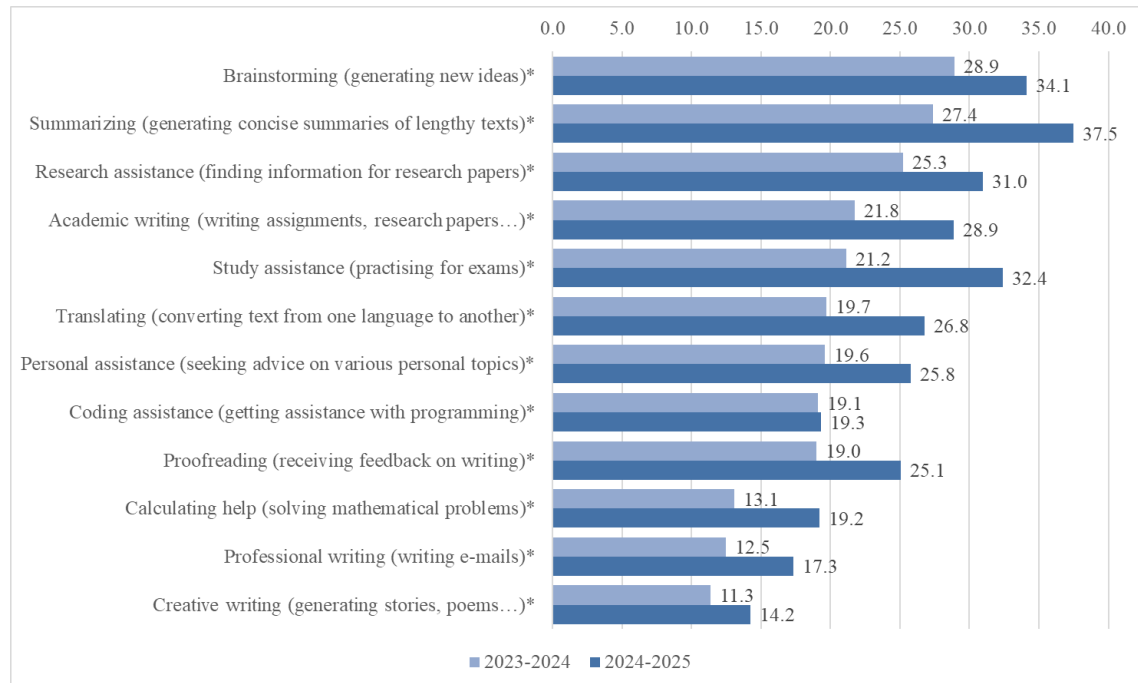


*Note:* An asterisk (*) indicates a statistically significant result of the t-test (p ≤ 0.05).
Source: Authors' calculations based on the Global ChatGPT Student Survey.

In the 2023–2024 academic year, students expressed generally positive but moderate satisfaction and attitudes toward ChatGPT (Figure 2). Many found it useful compared to tools like Google or other web search engines, noted that it was relatively easy to interact with, and believed it provided clearer information than their professors. There was also a fair level of satisfaction with the quality, accuracy, and overall assistance offered by ChatGPT. Most students found using the tool interesting and considered the ability to use it important for both academic and everyday purposes. In 2024–2025, these attitudes became more favourable, with more students viewing ChatGPT as more useful than conventional search engines, reporting greater satisfaction with its assistance, and finding its explanations even clearer. The ease of interaction was noted more positively, and a growing number of students emphasized the importance of being able to use ChatGPT, suggesting it had become more integrated into their academic routines. While overall interest remained high, there was a slight drop in how interesting students found the tool (a 3.2 p.p. decrease). Comparing both years, the strongest positive changes were in the perception of ChatGPT's usefulness over traditional search engines (a 6.2 p.p. rise), satisfaction with the assistance it provides (a 4.7 p.p. rise), and the importance placed on being able to use it (a 4.5 p.p. rise), while the only decline was in students' interest in using ChatGPT (a 3.2 p.p. decrease), possibly indicating that as the tool became more normalized in students' daily academic lives, its novelty began to fade.

**Figure 2**

*Students' Satisfaction and Attitudes toward ChatGPT*



*Note:* An asterisk (*) indicates a statistically significant result of the t-test (p ≤ 0.05).
Source: Authors' calculations based on the Global ChatGPT Student Survey.

The results show a clear connection between the way students use ChatGPT and their overall satisfaction and attitudes toward it. As students began to rely more heavily on the tool for tasks such as study support and summarizing, their perceptions of its usefulness and the quality of assistance it provides also improved. This growing reliance reflects a shift in how students view ChatGPT, as it moved from being seen as a novel tool to becoming a dependable part of their academic routine. The increased satisfaction with its clarity, ease of interaction, and value compared to traditional search engines suggests that students not only used ChatGPT more frequently but also recognized its role in helping them manage academic challenges more effectively. Although interest in the tool declined slightly, this likely reflects its integration into everyday academic life rather than a decrease in its perceived value.

## Conclusion

This two-year global study provides one of the most comprehensive insights to date into the evolving relationship between students and ChatGPT in higher education. The findings clearly indicate that the adoption and integration of generative artificial intelligence tools, particularly ChatGPT, have increased significantly between the 2023–2024 and 2024–2025 academic years. Not only did usage rates rise sharply, but students also expanded the scope of tasks for which they used the tool, increasingly relying on it for academic support functions such as summarization, study assistance, and information retrieval (Boubker, 2024; Pallivathukal et al., 2024). These trends reflect a broader shift toward normalization

and mainstream acceptance of artificial intelligence–driven support in educational routines (Tlili et al., 2023; Ajlouni et al., 2023).

Furthermore, students' satisfaction and attitudes toward ChatGPT have generally improved over time. The tool is perceived as more useful than traditional search engines, easy to interact with, and capable of providing clear, personalized support (Park, 2023; Ravšelj, Keržič, et al., 2025). The rising importance students place on being able to use ChatGPT highlights a growing expectation that proficiency in such tools is becoming an essential academic and life skill (Michalon & Camacho-Zuñiga, 2023). Interestingly, the slight decline in perceived novelty suggests that ChatGPT is moving from an emerging innovation to an embedded element of everyday student life.

However, several limitations of the study must be acknowledged. First, the use of a convenience sampling strategy may limit the generalizability of the results, as it does not fully represent the diversity of the global student population (Sarstedt et al., 2018). Second, although the survey was translated into multiple languages to encourage broad participation, linguistic nuances may have affected how some questions were interpreted by respondents. Third, the reliance on self-reported data introduces potential biases, such as recall inaccuracy or social desirability effects. Fourth, the study lacks advanced statistical analyses, which may limit the causal interpretability and robustness of the findings. Finally, given the rapid pace at which generative artificial intelligence technologies evolve (Dong et al., 2024), some findings may become outdated quickly, emphasizing the need for ongoing, longitudinal research in this area.

Nonetheless, the study offers robust empirical evidence that generative artificial intelligence is reshaping the student experience in higher education. As artificial intelligence tools become more sophisticated and accessible, understanding their pedagogical implications will be essential for educators, policymakers, and students alike. Future research should explore not only how students use these tools but also how their learning processes, cognitive engagement, and academic achievements are influenced over time.

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