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What do students use AI tools for? Assessing students' use of AI tools in three typical study related scenarios

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Abstract

In recent years, generative artificial intelligence (AI) has emerged as a powerful, but also highly controversial, tool in higher education. While there are in-depth debates about the ethics and regulation of the use of generative AI, discussions about the actual use cases for which students use AI are much more limited. This paper presents an empirical case study based on a survey (realised sample n=110; response rate: ~ 80%) at a medium-sized Austrian university. The analysis shows that about 20% will definitely use AI tools for writing term papers, about 30 to 35% will use AI for preparing exams and poster presentations. Alarmingly, in regression models, knowledge of AI had no statistically significant influence on whether students considered using AI or not - the decision is mostly influenced by one's enthusiasm for AI.

Keywords: *AI use; AI Knowledge; Technology commitment; Survey Research; Student Learning*

1. Introduction - Using AI for study purposes?

In recent years, generative artificial intelligence (AI) has emerged as a powerful but also highly controversial tool in higher education (Jahic et al. 2024). Following the launch of OpenAI's trailblazer ChatGPT, specialized offerings such as *scispace* (see: https://typeset.io) or *paperguide* (see: https://paperguide.ai) found their way online, and software engineers started to develop standalone solutions such as the Austrian solution Academic AI (see: https://www.acomarket.at/de/portfolio/projekte/academic-ai).

These software packages are currently transforming the way students learn, collaborate and produce academic work. While early applications of AI in higher education were largely focused on automated grading or adaptive learning platforms (Luckin et al., 2016), recent developments have led to more diverse and individualized applications - from AI-assisted writing tools to chatbots that provide personalized study recommendations (Zawacki-Richter et al., 2019, Jahic et al. 2024). As these technologies become more accessible, questions arise about the specific

ways in which students incorporate AI into their academic activities, and how individual and contextual factors shape their decisions to do so. In the social sciences, where critical thinking and nuanced argumentation are often seen as central elements of degree programs, the integration of generative AI warrants particular attention.

Accordingly, the paper uses a case study from the Johannes Kepler University Linz, a medium-sized public university in Austria, to investigate whether and in which situations social science students use generative AI in their studies. Before presenting the case study in sections 3 (data and methods) and 4 (analysis), a short review of the state of the art will introduce the topic. A short conclusion concludes the paper.

2. AI in Higher Education: An Evolving Landscape?

While the discussion of AI in higher education has a longer tradition – often linked to automated assessment and adaptive tutoring systems (Gonzales-Calatayud et al., 2021) – the emergence of generative AI has substantially broadened the potential use cases of related tools (Kasneci et al., 2023). This technological shift can be considered both generational and transformative: it is not only a step generational forward in technology, but generative AI is transformative, when it comes to human-computer interaction as it is capable of offering personalized feedback, language support, and structured advice on complex tasks such as coding and programming, even for users with minimal training (Prandner et al., 2025). At the same time, however, higher education institutions and individual educators remain concerned about issues of academic integrity, plagiarism, transparency, and the possible erosion of critical thinking skills (Dabis & Csaki, 2024; Sharples, 2023).

Accordingly, a key theme in current research involves understanding if and how students incorporate AI tools into their day-to-day academic routines. Recent literature suggests that assessment-related tasks strongly motivate students to experiment with AI tools. For instance, AI-based writing assistants (e.g., Grammarly, DeepL, or ChatGPT) are commonly used to refine papers, minimize spelling and grammatical errors, and enhance the coherence of arguments (Polakova & Klimova, 2023). Nevertheless, ongoing debates highlight the previously mentioned ethical considerations when using AI for writing-related assignments. In addition, various platforms (e.g., SlidesAI, Beautiful.ai) allow students to generate presentation slides, infographics, and summaries of complex data. While these applications can save significant time, educators emphasize that students must also cultivate creative and analytical competencies to effectively design content on their own (OECD, 2021).

Beyond writing and presentation tasks, an emerging line of inquiry focuses on the role of chatbots in exam-related activities. Potential uses include self-testing, summarizing course materials, and offering quick explanations of difficult concepts (Xia et al., 2024; Kasneci et al., 2023). Yet critics argue that relying on chatbots for such purposes may undermine deeper

conceptual understanding (Larson et al., 2024). Although these examples represent some of the most prominent use cases for AI, there is still limited information regarding the extent to which students engage with these technologies across different disciplines and educational contexts.

When it comes to general digital engagement and technology skills, multiple studies indicate that students with higher levels of digital competency also display stronger technology acceptance and are thus more likely to incorporate AI tools into academic tasks (Zawacki-Richter et al., 2019). Conversely, recent papers underscore those uncertainties around plagiarism, data privacy, or algorithmic biases may deter students from using generative AI (Kasneci et al., 2023). Although no conclusive data show that specific fields—such as the social sciences—are inherently more cautious about adopting AI, it is reasonable to assume a heightened awareness in such areas due to their strong emphasis on the critical evaluation of sources and arguments. Indeed, social science curricula often encourage students to examine the socio-technological implications of emerging technologies—such as biases in AI training data or ethical concerns surrounding automated decision-making—thereby fostering a more cautious stance toward AI overall (Author A, 2025).

3. Data and Methods

As the previous two sections illustrate, the use of AI in academic learning environments is a rather complex issue: while there are many potential use scenarios, studies of actual use are still rare. Even rarer are those that attempt to identify which students are using which techniques, as the fluid situation regarding ethics, policies, and expectations makes this difficult to cover. Therefore, the collaborative project "ChatGPT in university settings" (PI: Daniela Wetzelhütter - University of Applied Sciences Upper Austria; Dimitri Prandner - Johannes Kepler University Linz; Thomas Schöftner - Private Pedagogical College of the Diocese of Linz) aims to find out who among students of social sciences uses AI and what they use it for. Based on the information presented in the previous section, an empirical study was conducted at the Johannes Kepler University in December 2024, using introductory methods courses for social science students in bachelor and master programs to recruit participants. The study was conducted in the form of a quantitative online survey, hosted by a GDPR-compliant German hosting provider. Students were asked to complete a questionnaire on AI use, digital literacy, and methods. While 160 students were enrolled in the relevant courses, mid-semester attrition (people dropping out of courses or their studies altogether) resulted in a brute sample of 138 students. Of these, 101 were from undergraduate programs and 37 were from graduate programs. Of these, the overall response rate was quite high (80%), with 110 people participating.

Table 1. Independent variables used during analysis

	Dimension	**Variable / Question**	**Original scales & Range**	**Mean (Median) or Percentage**
	AI-Knowledge test	Thinking about […], which of the following uses artificial intelligence (AI)? (n=102)	4 response options for all six domains, 1 correct, random item order. 0 to 6 correct answers	2.67 (3)
Technology Commitment	Technology Competence | Negative (Extracted Variance: 40.9%; Cronbach's Alpha: 0.848)	"For me, dealing with technical innovations is usually overwhelming." (n=110)	Strongly agree (1) to strongly disagree (5) *(inversely coded)*	3.75 (4.00)
		"I find dealing with new technology difficult — most of the time I just can't do it." (n=110)	Strongly agree (1) to strongly disagree (5) *(inversely coded)*	4.16 (4.00)
	Technology acceptance (Extracted Variance: 20.9%; Cronbach's Alpha: 0.743)	"I'm very curious about new technological developments." (n=110)	Strongly disagree (1) to strongly agree (5)	3.62 (4.00)
		"I quickly take a liking to new technological developments." (n=110)	Strongly disagree (1) to strongly agree (5)	3.35 (3.00)
	Technology control conviction (Extracted Variance: 17.4%; Cronbach's Alpha: 0.487)	"It's up to me whether I succeed in using new technological developments — chance or luck have little to do with it." (n=104)	Strongly disagree (1) to strongly agree (5)	3.63 (4.00)
		"When I have difficulties with technology, ultimately it depends solely on me to resolve them." (n=104)	Strongly disagree (1) to strongly agree (5)	3.06 (3.00)
	Engagement with AI	"How much have you already engaged with AI (e.g., by reading about it or hearing about it)?" (n=103)	"Engaged with it" (1) "nevere engaged" (0)	93.2% engaged
	Enthusiasm regarding AI	"Would you generally say that the increasing use of Artificial Intelligence (AI) in everyday life makes you feel enthusiastic?" (n=102)	"Enthusiastic" (1) "Not enthusiastic" (0)	29.4% enthusiastic

The key variables of interest are the measures of whether people plan to use AI-based tools for upcoming term papers, poster presentations, or for preparation. The ordinal response scale ranged from 1 - definitely to 3 - definitely not. The descriptive results and the logistic regression on these variables can be found in the next section. To control the results, a 6-item knowledge test on the use of AI in everyday life previously used by PEW Research and developed by Kennedy et al. (2023), two self-report items on AI engagement and enthusiasm (originally 4-step ordinal items, dichotomized for analysis), and six items from Neyer et al.'s (2016) technology commitment scale. These six items were used to construct three factor variables via principal component extraction. These variables express technology competence, technology acceptance, as well as technology control belief, as suggested by Neyer et al. (2016). While the Cronbach alpha threshold of 0.7 cannot be reached for the technology control conviction dimension, it was decided to use the factor, as the solution was consistent with the theoretical model. Additionally, age (mean: 22, st.dev.: 4.5; n=94) and gender (71% female; n=91) were controlled for. Concerning tool transparency it can be stated that all calculations were conducted with SPSS V29 from IBM, while DeepL was used for spellchecking the paper.

4. Results

When it comes to using AI for academic activities, the results show that overall, students are mostly unsure if they want to use AI tools. However, when it comes to preparing for exams and creating a poster for a presentation, around a third of students said they would definitely use AI support in the future. When it comes to writing a term paper, only 22% - just over a fifth of students - said they would definitely use AI. This reflects the nature of the work involved in academic activities: While there has been controversy about the ethics of using AI for writing,

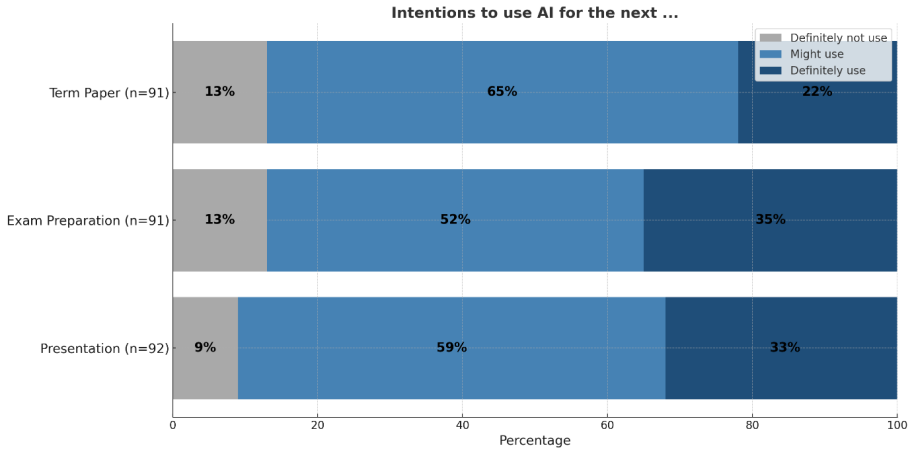

Figure 1 – AI use intention by surveyed students (own graphic)

Table 2. Logistic Regression models:
Dependent Variables: Student will definitely use AI to for the next … (Ref: Might/Definitely not);
Values stated are Exp(B), sig: * p<0.1; ** p<0.05, *** p<0.001 [Adjusted for small sample size]

Dependent variable:	**Term Paper (n=88)**	**Presentation (n=88)**	**Exam Preparation (n=87)**
	Exp(B)	**Exp(B)**	**Exp(B)**
AI-Knowledge test (score – ascending)	1.32	1.19	1.16
Technology Competence | Negative	0.68	0.85	0.87
Technology acceptance	2.24*	1.47	0.93
Technology control conviction	1.25	1.00	0.98
Engagement with AI (Ref = never)	0.28	0.53	0.81
Enthusiasm regarding AI (Ref = not enthusiastic)	4.28**	4.93***	3.65**
Sex (Ref= Female)	0.48	1.94	1.63
Age (in years	1.01	1.00	0.96
Model Quality:			
Nagelkerke's R^2	***0.31***	***0.18***	***0.11***
Model Sig.	***0.012***	***0.140***	***0.52***

with some universities deciding to reduce the role of writing in their curricula, other forms of AI use in academic contexts, such as exam preparation, have a longer tradition and are rarely mentioned in current debates.

Turning to the logistic regression models, several interesting facts emerge. First, the term paper model is the only one of the proposed models that is significant at the model level ($p<0.05$), while also explaining about 32% of the variance when it comes to identifying those who want to use AI. Statistically significant effects suggest that technology acceptance and enthusiasm for AI play a key role in the decision to use AI. As expected, the odds ratio of 4.28 shows that enthusiasm for AI is a strong predictor, as people who are enthusiastic about AI are more than four times as likely to say they want to use AI tools for their next term paper than those who are not. Technology acceptance has an odds ratio of 2.24. The other two models are not statistically significant, but enthusiasm for AI is still a significant influence for both models, which opens the space for further discussion about what potential measures and models need to be considered in future research to satisfactorily explain students' use of AI. It seems to be mostly related to the fact that attitudes towards technology shape the openness to try AI-based tools.

5. Conclusion

The empirical case study presented in this paper provides valuable insights into students' use of AI for academic purposes. First, only a minority of students indicate that they would not consider using AI in future work. Second, the data suggests that the use of AI is perceived as

more problematic when it comes to applications related to text production. This is consistent with the prevailing public debate about the role of AI in academic integrity and authorship. In contrast, the other two tasks examined (creating a presentation and preparing for an exam) in the context of AI use seem to be more widely accepted by students. Overall, this means that AI is here to stay in learning and teaching and will be used by students, and that adaptation is needed on both sides - educators and learners.

This is consistent with recent arguments by Larson et al. (2024) and even before the advent of generative AI by Luckin et al. (2016). From an interpretive perspective, the results presented from the multivariate logistic regression models are particularly relevant given the existing knowledge of past technological breakthroughs and their impact on learning and teaching. Traditional models of technology adoption, such as the Technology Commitment Scale, do not appear to influence students' use of AI at the expected intensity. Instead, the model suggests that AI adoption is mostly driven by enthusiasm rather than informed knowledge of the technology. This poses a potential risk, as students may integrate AI into their academic work regardless of their level of understanding of its implications. As a result, there is a need to further discuss the role of education and training in digital competencies (Grünangerl & Prandner, 2024). However, this study has some limitations that should be addressed in future research. First, the findings are based on a single case study at one university with a limited number of participants, which limits generalizability. Second, the survey questions focused on future intentions rather than actual behavior, which may not accurately reflect real-world AI usage patterns. Future research should use more direct data collection methods, such as soliciting data donations from students, to capture actual AI usage behaviors rather than relying solely on self-reported intentions. Nevertheless, the central conclusion remains that student AI use is currently characterized by uncertainty, making it difficult to identify clear predictors and associated usage patterns.

References:

Dabis, A., & Csáki, C. (2024). AI and ethics: Investigating the first policy responses of higher education institutions to the challenge of generative AI. *Humanities and Social Sciences Communications, 11*(1), 1–13. https://doi.org/10.1057/s41599-024-03526-z

González-Calatayud, V., Prendes-Espinosa, P., & Roig-Vila, R. (2021). Artificial Intelligence for Student Assessment: A Systematic Review. *Applied Sciences*, *11*(12), 5467. https://doi.org/10.3390/app11125467

Gruenangerl, M.; Prandner, D. 2024. The contribution of digital technology training to the digital competency gap. A case study from Austria. In*: 10th International Conference on Higher Education Advances (HEAd'24) (pp. 597-604)*. https://doi.org/10.4995/HEAd24.2024.17322

Jahić, I., Ebner, M., Schön, S., & Edelsbrunner, S. (2024). Exploring the use of generative AI in education: Broadening the scope. In: *International Conference on Human-Computer Interaction* (pp. 283–304). Springer Nature Switzerland.

Kasneci, E., Seßler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274.

Kennedy, B., Tyson, A., & Saks, E. (2023). *Public Awareness of Artificial Intelligence in Everyday Activities (Wave 119)*. Pew Research Center. https://www.pewresearch.org/ science/wp- content/uploads/sites/16/2023/02/PS_2023.02.15_AI-awareness_REPORT.pdf

Larson, B. Z., Moser, C., Caza, A., Muehlfeld, K., & Colombo, L. A. (2024). Critical thinking in the age of generative AI. *Academy of Management Learning & Education*, *23*(3), 373-378.

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education.* Pearson. https://static.googleusercontent.com/media/edu.google.com/en//pdfs/Intelligence-Unleashed-Publication.pdf

Neyer, F. J., Felber, J., & Gebhardt, C. (2016). Kurzskala Technikbereitschaft (TB, technology commitment). *Zusammenstellung sozialwissenschaftlicher Items und Skalen (ZIS)*. https://doi.org/10.6102/ZIS244

OECD (2021), *OECD Digital Education Outlook 2021: Pushing the Frontiers with Artificial Intelligence, Blockchain and Robots*, OECD Publishing. https://doi.org/10.1787/589b283f-en.

Polakova, P., & Klimova, B. (2023). Using DeepL translator in learning English as an applied foreign language–An empirical pilot study. *Heliyon*, *9*(8). https://doi.org/10.1016/j.heliyon.2023.e18595

Sharples, M. (2023). Towards social generative AI for education: theory, practices and ethics. *Learning: Research and Practice*, *9*(2), 159-167.

Prandner D, Wetzelhütter D and Hese S (2025) ChatGPT as a data analyst: an exploratory study on AI-supported quantitative data analysis in empirical research. Front. Educ. 9:1417900. doi: 10.3389/feduc.2024.1417900

Xia, L. A., Sun, O. Y., & Reis, C. (2024). Hearing Students' Voices: Access, Use Patterns and Attitudes toward Generative AI Technologies among Chinese Students. *ChatGPT and Global Higher Education: Using Artificial Intelligence in Teaching and Learning* (pp. 122 – 134). StarScholars.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – Where are the educators? *International Journal of Educational Technology in Higher Education, 16*, 39. https://doi.org/10.1186/s41239-019-0171-0