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German-Language Majors' Voices on ChatGPT Use in Tertiary Education: A Mixed-Methods Study

Larysa Kupchyk
National University of Water and Environmental Engineering, Ukraine, *l.y.kupchyk@nuwm.edu.ua*

Liudmyla Pasyk
Lesya Ukrainka Volyn National University, Ukraine, *pasyk.lyudmyla@vnu.edu.ua*

Olena Bondarchuk
Lesya Ukrainka Volyn National University, Ukraine, *Bondarchuk.Olena@vnu.edu.ua*

Larysa Rys
Lesya Ukrainka Volyn National University, Ukraine, *rys.larysa@vnu.edu.ua*

This mixed-methods study examines how Ukrainian undergraduates majoring in German language studies perceive and use ChatGPT. 113 participants responded to the ChatGPT Usage Scale for Foreign Language Learners, developed by Çobanoğullari and Özbek (2025) and supplemented with open-ended questions to deepen understanding of students' attitudes toward ChatGPT use. Quantitative results showed moderate to high levels of ChatGPT use in domains such as information retrieval, grammar explanations, and exam preparation. Students reported substantially lower engagement in higher-order activities, including the development of critical thinking, creativity, and communicative skills. Findings indicate significant demographic nuances: female students exhibited stronger affective and motivational engagement – suggesting AI's role in maintaining academic continuity and resilience – while language proficiency level did not dictate frequency of use. Qualitative findings confirmed these patterns and highlighted perceived gains in efficiency, personalized support, and reduced anxiety, as well as concerns about inaccuracies and over-reliance. Theoretically, this study extends cognitive offloading theory, distinguishing between foundational offloading for lower-level linguistic tasks and the underexploited potential for evaluative offloading in higher-order cognitive processes. The study underscored the need for instructional approaches that foster regulated AI use in tertiary German language education.

Keywords: higher education, language education, German-major baccalaureate students, ChatGPT Usage Scale, cognitive offloading, mixed-methods research

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INTRODUCTION

In recent years, the integration of generative artificial intelligence (AI) has become increasingly widespread across various domains. As Godwin-Jones (2024) notes, "the 'AI' moniker is now being attached to products and services of all kinds, similar to the hype around web addresses in the 1990s or surrounding mobile apps in the early smartphone days" (p. 5). He further suggests that "the buzz about AI is not misplaced" and its presence has transformed educational contexts (Godwin-Jones, 2024, p. 6). Within this landscape, ChatGPT has emerged as a pivotal catalyst and the most widely adopted AI tool among students (Vaněček et al., 2025). The prominence is driven by three distinguishing factors: "its ability to generate text of excellent quality for a variety of users, its ongoing development, and its free nature" (Taktak & Bafrah, 2025, p. 193).

Theoretically, the increasing reliance on AI in education can be understood through the lens of cognitive offloading theory (Risko & Gilbert, 2016). In technology-enhanced language learning, students utilize tools like search engines, translation tools, or AI systems like ChatGPT to store and process information, thereby delegating their mental efforts to external systems. ChatGPT specifically addresses the shortcomings of traditional instruction – provide personalized feedback or exposure to authentic language use (Qu & Wu, 2024). This allows the tool to generate human-like responses across languages and contexts, offering students contextualized practice, timely and instant explanations of linguistic queries, and interactive tasks that simulate authentic communicative scenarios (Klimova et al., 2024; Qu & Wu, 2024; Xiao & Zhi, 2023). However, the adoption of ChatGPT varies: while English (33%), Spanish (18%), and Japanese (11%) are the most frequently learned languages with ChatGPT, German ranks sixth at only 6% (Chen et al., 2025). This disparity is reflected in current scholarship; while extensive research explores ChatGPT's application in language learning, the focus remains mostly on English (Abdelsaheed & Alsalamah, 2026; Busso & Sanchez, 2024; Ding & Yusof, 2025; Lo et al., 2024; Nguyen & Doan Thi Hue, 2025; Qu & Wu, 2024). Recently, scholarly interest has shifted from the tool's technical performance toward student perceptions of its pedagogical value and reliability (Arowosegbe et al., 2024; Dizon et al., 2025; Karataş et al., 2024; Nguyen & Doan Thi Hue, 2025). This shift has led to the development of various scales designed to measure human engagement with AI (Maral et al., 2025; Nemt-allah et al., 2024; Taktak & Bafrah, 2025). Notably, the scale developed by Çobanoğullari and Özbek (2025) specifically targets foreign language students, yet its application across diverse linguistic settings remains underexplored.

In response to the growing integration of AI, particularly ChatGPT, in language education and the uneven empirical attention afforded to languages other than English, this study investigates how Ukrainian undergraduates majoring in German utilize ChatGPT in their foreign language learning. Using the ChatGPT Usage Scale for Foreign Language Learners (Çobanoğullari & Özbek, 2025), the study examines students' familiarity with the tool, patterns and frequency of use, and perceptions of its pedagogical effectiveness. By addressing an underexplored linguistic and educational context, the research aims to provide grounded insights into the role of AI in tertiary German language courses.

Guided by this objective, the research is structured around the following questions (RQ):

RQ1: What levels and patterns of ChatGPT use are reported by undergraduate students of German?

RQ2: What statistically significant differences or relationships are evident in German language undergraduates' reported use of ChatGPT for studying German?

RQ3: How do students perceive the effectiveness of ChatGPT in supporting their German language learning?

Literature Review

The rapid integration of Large Language Models (LLMs) into higher education has fundamentally altered the cognitive architecture of language learning. Rather than serving as mere digital dictionaries, tools like ChatGPT act as externalized cognitive support, allowing students to delegate specific mental functions. This phenomenon is best understood through cognitive offloading theory, which posits that students undertake physical or technological actions to reduce the cognitive demands of a task or free the resources for a higher-order task (Risco & Gilbert, 2016). In the context of foreign language education, ChatGPT facilitates a shift from internal linguistic retrieval to the external management of automated systems.

From a cognitive offloading perspective, ChatGPT serves as a supportive learning resource (Abdelsaheed & Alsalamah, 2026; Ding & Yusof, 2025; Durgungoz & Kharrufa, 2025). By delegating routine tasks – such as orthography, grammatical computation, and vocabulary retrieval (Xiao & Zhi, 2023) – students can theoretically free up working memory for higher-order functions like thematic coherence and pragmatic intent. This delegation often manifests in such students' behaviours as *verification* of "AI-provided information, connecting AI-provided ideas with prior knowledge" (Daha & Altelwany, 2026, p. 761); *affective offloading* since language anxiety reduces and the willingness to take linguistic risks increases (Andreou & Christani, 2025; Busso & Sanchez, 2024; Durgungoz & Kharrufa, 2025); and *scaffolding* to replicate dialogue-based practice and provide instant corrective feedback, which traditionally requires high mental monitoring (Al-Hoorie & AlShakhori, 2025; Klimova et al., 2024).

While offloading can enhance performance, the scholarship has highlighted a critical tension: the illusion of competence. In the randomized controlled trial (N = 120), Barcaui (2025) warned that by eliminating "desirable difficulties needed for deep learning" (p. 11), AI-mediated offloading may inadvertently bypass the deep cognitive processing necessary for long-term retention. This creates a paradoxical character of AI being "both a cognitive amplifier and inhibitor" (Jose et al., 2025).

Effective offloading requires self-regulated learning. In a quasi-experimental study, Hsu (2025) concluded that English as a Foreign Language students effectively collaborated with ChatGPT and successfully managed the distribution of cognitive load across human-AI systems, indicating that "AI tools become genuine cognitive partners rather

than mere information sources" and lead to enhanced learning experiences and outcomes via entangled cognitive processes (p. 11). Meanwhile, Hou and Zhou (2025) revealed that, in an AI-enhanced foreign language learning environment, students "engage in externalized reflection, reconstructing their cognitive beliefs and learning strategies through technological feedback" (p. 16).

Alongside the aforementioned benefits, the literature has highlighted growing student awareness of ChatGPT's uncertainty. While personalization and conversational authenticity are frequently cited as key strengths shaping favourable attitudes toward ChatGPT (Baskara & Mukarto, 2023), students also report concerns related to over-reliance and reduced metacognitive engagement (Karataş et al., 2024). From a cognitive offloading view, excessive delegation of such processes as argument construction, error detection, or pragmatic judgment can compromise deep learning unless students exercise self-regulated control (Durgungoz & Kharrufa, 2025). Recurring issues such as hallucinations, limited contextual appropriateness, and insufficient cultural nuance further complicate students' trust in ChatGPT (Sun et al., 2024). Additionally, Arellano et al. (2024) highlighted several ethical concerns, such as privacy, academic integrity, and authorship, that also shape how students view these technologies. These constraints have necessitated a critical and responsible approach to ChatGPT integration, as according to Walter (2024), AI tools should be "used, understood, and critically evaluated" (p. 8).

Despite the existing scholarship, significant gaps remain noticeable. Most studies are Anglocentric, with languages other than English receiving limited attention (Lo et al., 2024). Consequently, empirical research in this area remains scarce. To support systematic investigation, Çobanoğullari and Özbek (2025) developed the ChatGPT Usage Scale for Foreign Language Learners, which links frequency and purpose of use with perceived effectiveness. However, the scale's applicability across linguistic disciplines, educational systems, and cultural contexts requires further validation.

This research gap is particularly evident in Ukraine's tertiary education system. While national studies report growing awareness of ChatGPT (Dovgyi et al., 2024), empirical evidence suggests that student use remains highly discipline-specific. Ivanytska et al. (2024) and Chugai and Havrylenko (2024) found that AI tools are often used sporadically or instrumentally, whereas students in applied fields, such as Business and IT, demonstrate more extensive and habitual reliance on ChatGPT (Pavlenko & Syzenko, 2024). Educational settings centered on language acquisition, particularly tertiary German-language education in Ukraine, remain underrepresented, with limited insight into how students perceive and regulate AI-mediated cognitive offloading.

Taken together, since empirical findings remain largely Anglocentric, the literature reveals persistent gaps at the intersection of German-language student perception and the regulation of AI-mediated cognitive support. Moreover, while cognitive offloading offers a useful explanatory lens for students' engagement with AI, it has rarely been operationalized through validated instruments that capture both patterns of use and perceived pedagogical effectiveness. Addressing these gaps, the present study investigates German-major undergraduates' engagement with ChatGPT in Ukrainian

higher education via the ChatGPT Usage Scale for Foreign Language Learners (Çobanoğullari & Özbek, 2025) to contribute context-sensitive evidence to the research on AI-mediated foreign language learning.

METHOD

The study took place between September 26 and October 6, 2025, at Lesya Ukrainka Volyn National University in Lutsk, Ukraine. It employed a convergent parallel mixed-methods design, allowing for the simultaneous collection of quantitative and qualitative data on the use of ChatGPT among undergraduate students majoring in German language studies.

Participants

Convenience sampling was employed due to its efficiency and accessibility in facilitating timely data collection (Ahmed, 2024). Data were collected via a Google Form survey shared among volunteer German-major students in the academic groups taught by authors. In total, 113 students completed the questionnaire. Notably, sample sizes exceeding 100 respondents are considered adequate for reliability analysis using Cronbach's alpha, as they help reduce statistical error (Kennedy, 2022, p. 26). The study adhered to the ethical principles set in the Declaration of Helsinki. Participants' demographic information is presented in Table 1.

Table 1
Participants profiles

Variable	Category	F	%
Gender	Male	11	9.7
	Female	102	90.3
Age	16-18 years old	38	33.6
	19-21 years old	64	56.6
	22-24 years old	7	6.2
	Over 25 years old	4	3.5
Year of study	1st	20	17.7
	2nd	29	25.7
	3rd	34	30.1
	4th	30	26.5
Level of German language proficiency	A1	29	25.7
	A2	34	30.1
	B1	27	23.9
	B2	20	17.7
	C1	3	2.7

Table 1 shows that the participants were predominantly female (90.3%), aged 19-21 years (56.6%). This unequal gender distribution reflected the typical demographic structure of language majors, particularly in German philology programs in Ukraine, where female students are significantly overrepresented. The distribution across study years was relatively balanced. In terms of German language proficiency, the majority reported beginner to lower-intermediate levels (A1-A2, 55.8%). Only a small fraction demonstrated advanced (C1) proficiency (2.7%), suggesting that most participants were still in the process of developing their German-language skills.

Instruments

Quantitative data were collected using a structured questionnaire with closed-ended items. The instrument incorporated the ChatGPT Usage Scale for Foreign Language Learners developed by Çobanoğullari and Özbek (2025), which demonstrated high internal consistency (Cronbach's α = 0.930). Item-total correlation coefficients ranged from 0.420 to 0.723 (Çobanoğullari & Özbek, 2025, p. 12527) and indicated that "the items are consistent with the entire scale and contribute to its internal consistency" (Çobanoğullari & Özbek, 2025, p. 12525). This questionnaire comprised 18 Likert-scale items (Q1-Q18) organized into a three-factor structure: Overall Usability (Q1-Q3, Cronbach's α = 0.829), Learning (Q4-Q10, Cronbach's α = 0.89), and Development (Q11-Q18, Cronbach's α = 0.84) (Çobanoğullari & Özbek, 2025, p. 12525). The first factor measured ChatGPT's general usability and frequency of use; the second evaluated its direct contribution to language learning, such as acquiring new knowledge, preparing for exams, and exploring unfamiliar topics; and the third assessed its broader impact on creativity, communication, and self-efficacy. Two open-ended questions (Q19-Q20) were included to collect qualitative data: Q19 – *In what ways has ChatGPT changed your approach to studying or learning new topics?,* Q20 – *How do you feel when using ChatGPT for learning, and what motivates or discourages you from using it regularly?*

Data analysis

The quantitative data collected in this study were analyzed using IBM SPSS Statistical software, version 20. To examine statistical patterns in the use of ChatGPT by Ukrainian students majoring in German Philology, Pearson's chi-square test was applied. To examine the relationships between different aspects of ChatGPT use, a correlation analysis was conducted using the Pearson correlation coefficient, with the results interpreted according to Chaddock's scale. According to this approach, the relationship between factors was interpreted as follows: 0-0.1 – none; 0.1-0.3 – weak; 0.3-0.5 – moderate; 0.5-0.7 – noticeable; 0.7-0.9 – close; 0.9-0.99 – strong; 0.99-1 – functional (Turan, 2020). Finally, to complement the correlational statistical procedure, a tree clustering analysis with Euclidean distances was performed using Ward's method to group similar data points. Providing "the best overall recovery" (Saraçli et al., 2013), Ward's minimum variance approach enabled the formation of homogeneous clusters and facilitated the identification of latent patterns of ChatGPT use within the dataset. It supported the interpretation of cognitive offloading strategies by revealing systemic patterns of tool use, rather than isolated variable relationships.

The collected qualitative data were translated into English in case they were originally provided in Ukrainian or German. These data were coded independently by two authors and interpreted through the thematic analysis on two interrelated levels: (1) a vertical analysis examined individual responses to capture variability in students' perspectives and practices, and (2) a horizontal analysis identified recurring patterns across the dataset, enabling the development of overarching themes. Coding consistency was discussed iteratively, and discrepancies were resolved through collaborative consensus to reach a unified thematic interpretation. Finally, the quantitative and qualitative

findings were triangulated to "validate, challenge, extend data, and enhance confidence" in the research findings (Ediyanto et al., 2025, p. 169).

FINDINGS

The present study examined self-reported use and perceptions of ChatGPT of German-major undergraduates at a university in the west of Ukraine and interpreted how these results reflected students' understanding, patterns of use, and perceived effectiveness of ChatGPT in language learning through the lens of cognitive offloading theory.

RQ1. What levels and patterns of ChatGPT use are reported by undergraduate students of German?

To address *RQ1*, the ChatGPT Usage Scale was used to explore students' perceptions of and usage patterns for ChatGPT in the context of German language studies. The results are presented in Table 2.

Table 2
Mean and standard deviation scores for ChatGPT usage indicators

Indicator	Code	Indicator Mean	Factor Mean	Std. Dev.
Overall Usability			3.73	
Using ChatGPT is easy for me.	Q1	3.99		1.06
I use ChatGPT regularly.	Q2	3.42		1.18
I use ChatGPT effectively.	Q3	3.77		0.97
Learning			3.35	
I use ChatGPT to learn new information.	Q4	4.24		0.98
I use ChatGPT to study for my exams.	Q5	3.16		1.28
I use ChatGPT to learn subjects I am lacking in.	Q6	3.54		1.21
I use ChatGPT to access learning materials.	Q7	3.35		1.16
I use ChatGPT because it provides versatile learning.	Q8	2.96		1.09
I use ChatGPT to enhance my linguistic skills.	Q9	3.42		1.22
I use ChatGPT to learn communication skills.	Q10	2.80		1.24
Development			3.06	
I use ChatGPT to enhance my analytical and critical thinking skills.	Q11	2.73		1.17
I use ChatGPT to improve my creative thinking skills.	Q12	2.88		1.16
I use ChatGPT to obtain different views and ideas.	Q13	3.49		1.16
I use ChatGPT to increase my learning motivation.	Q14	2.78		1.28
I use ChatGPT to make my learning process more enjoyable.	Q15	3.34		1.29
I use ChatGPT to boost my self-confidence in language learning.	Q16	3.14		1.25
I use ChatGPT to enhance my learning self-efficacy.	Q17	3.12		1.15
I use ChatGPT for inspiration.	Q18	2.96		1.30

The results indicate a moderate to high level of ChatGPT use by undergraduate students. They found the tool easy to use (M = 3.99), effective (M = 3.77), and valuable for learning new information (M = 4.24). The highest mean values concerned basic learning activities, such as learning new information (Q4, M = 4.24), understanding new material (Q6, M = 3.54), improving language skills (Q9, M = 3.42), and preparing for exams (Q5, M = 3.16). However, the lowest mean values were recorded for higher-

order cognitive skills – critical thinking (Q11, M = 2.73), creativity (Q12, M = 2.88), and communication skills (Q10, M = 2.80). The standard deviation (SD) data confirmed these patterns. The smallest SD values (Q1, Q3, Q4) indicated high consensus about ChatGPT's ease and usefulness, whereas larger SD values (Q5, Q14, Q15, Q18) reflected more varied experiences, especially regarding motivation, inspiration, and enjoyment.

RQ2. What statistically significant differences or relationships are evident in German language undergraduates' reported use of ChatGPT for studying German?

To answer *RQ2,* Pearson's chi-square test was employed. The analysis revealed statistically significant gender and age differences, but no difference regarding the language proficiency level. As for gender, significant differences were identified within the creative and affective dimensions of ChatGPT use (Table 3).

Table 3
Gender differences in ChatGPT use

Indicator	Code	Chi-Square Tests		Mean	
		Value	Asymp. Sig. (2-sided)	Male	Female
I use ChatGPT because it provides versatile learning.	Q8	13.305	0.01	2.73	2.99
I use ChatGPT to improve my creative thinking skills.	Q12	20.275	0	2.27	2.95
I use ChatGPT to make my learning process more enjoyable.	Q15	10.925	0.027	3.27	3.34
I use ChatGPT for inspiration.	Q18	9.667	0.041	2.45	3.02

No significant differences were observed in basic aspects, such as using ChatGPT for information search; however, the gap became substantial in areas related to creativity and the emotional dimension of the learning process. The most illustrative example was the use of ChatGPT for enhancing creative thinking (Q12), where the largest difference in mean scores was recorded (2.95 for women, 2.27 for men; p = 0). This indicates that female students were far more likely to view the tool not merely as a passive database but as an active instrument for brainstorming, ideation, and finding inspiration (Q18, p = 0.041). They also rated the ability of ChatGPT to make learning more universal (Q8, p = 0.01) and more enjoyable (Q15, p = 0.027).

Table 4
Age differences in ChatGPT use

Indicator	Code	Chi-Square Tests		Mean			
		Value	Asymp. Sig. (2-sided)	16-18 years old	19-21 years old	22-24 years old	Over 25 years old
I use ChatGPT effectively.	Q3	27.528	0.006	3.00	3.64	3.86	3.25
I use ChatGPT to enhance my learning self-efficacy.	Q17	22.999	0.028	3.13	3.19	3.14	2.00

Age-related differences revealed a nonlinear pattern reflecting students' academic maturation (Table 4). Perceived effectiveness in using ChatGPT (Q3, p = 0.006) increased with age, with the youngest students (16–18) reporting the lowest effectiveness (M = 3.00) and senior students (22–24) the highest (M = 3.86). In contrast, perceptions of ChatGPT's impact on learning self-efficacy (Q17, p = 0.028) remained consistently high among students under 24 (M ≈ 3.15) but fell sharply in the oldest group (over 25), reaching the lowest mean score (M = 2.00).

Table 5
Correlation matrix of ChatGPT usage indicators

	Q1	*Q2*	*Q3*	*Q4*	*Q5*	*Q6*	*Q7*	*Q8*	*Q9*	*Q10*	*Q11*	*Q12*	*Q13*	*Q14*	*Q15*	*Q16*	*Q17*	*Q18*
Q1	1																	
Q2	0.548	1																
Q3	0.589	0.678	1															
Q4	0.435	0.595	0.595	1														
Q5	0.543	0.543	0.597	0.513	1													
Q6	0.472	0.464	0.486	0.57	0.573	1												
Q7	0.302	0.462	0.46	0.402	0.44	0.549	1											
Q8	0.324	0.448	0.429	0.435	0.458	0.44	0.54	1										
Q9	0.487	0.521	0.449	0.53	0.574	0.571	0.409	0.559	1									
Q10	0.278	0.292	0.227	0.328	0.336	0.347	0.28	0.284	0.504	1								
Q11	0.315	0.276	0.275	0.267	0.302	0.316	0.371	0.383	0.296	0.361	1							
Q12	0.138	0.194	0.175	0.254	0.182	0.236	0.418	0.407	0.249	0.395	0.669	1						
Q13	0.325	0.325	0.283	0.339	0.303	0.225	0.32	0.423	0.366	0.256	0.366	0.463	1					
Q14	0.302	0.311	0.372	0.415	0.349	0.426	0.416	0.385	0.337	0.502	0.496	0.429	0.429	1				
Q15	0.497	0.497	0.431	0.438	0.453	0.396	0.501	0.432	0.504	0.366	0.342	0.474	0.45	0.65	1			
Q16	0.291	0.31	0.261	0.352	0.304	0.332	0.361	0.395	0.474	0.438	0.488	0.425	0.451	0.471	0.56	1		
Q17	0.39	0.389	0.401	0.443	0.375	0.464	0.431	0.522	0.547	0.412	0.574	0.555	0.464	0.522	0.638	***0.719***	1	
Q18	0.215	0.18	0.206	0.254	0.295	0.195	0.128	0.321	0.314	0.196	0.388	0.475	0.434	0.415	0.444	0.339	0.404	1

* Note: cells highlighted in *grey* indicate *noticeable* differences, and those in *bold italics* indicate *close* ones.

The analysis of the correlation matrix (Table 5) revealed several noticeable and one close relationship. Students who used ChatGPT effectively (Q3) were also more likely to use it regularly (Q2) and for various academic purposes (Q4, Q5, Q6). The close correlations between motivational use cases (Q14 and Q15) and confidence/self-efficacy items (Q16 and Q17) further indicated the blurring boundaries between cognitive and emotional dimensions of learning with AI.

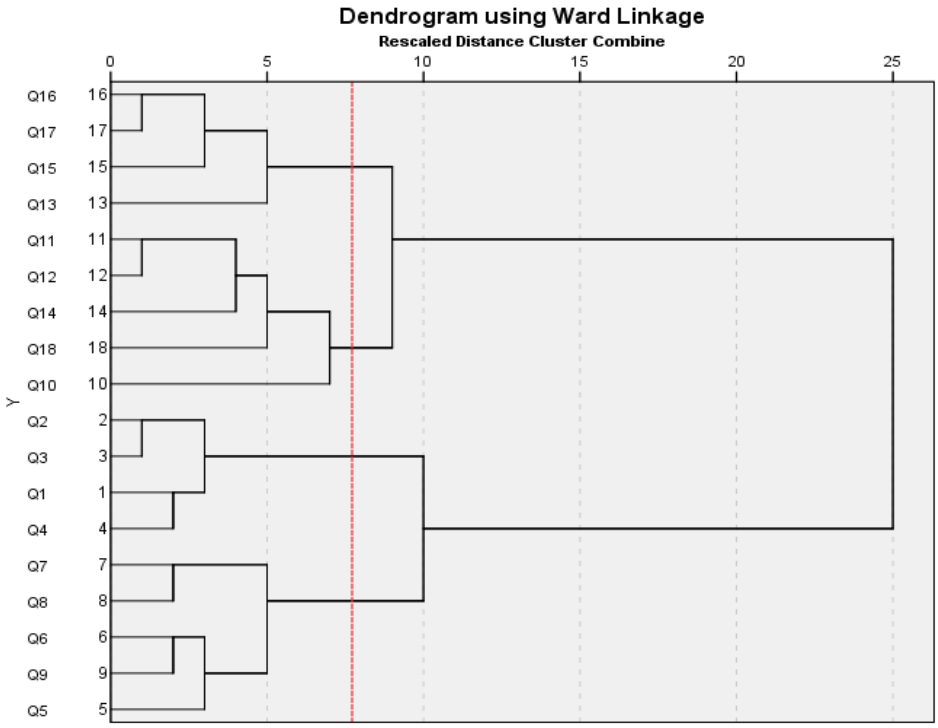

Figure 1
Dendrogram of clustering indicators using Ward's method

A hierarchical cluster analysis was conducted to explore patterns in using ChatGPT when learning German, identifying four distinct clusters (Figure 1, Table 6).

The highest mean score (3.86) was recorded for the third cluster. It combined factors related to the *fundamental usefulness and accessibility* of ChatGPT. Students found ChatGPT easy to use (Q1), effective (Q3), and regularly turned to it for information retrieval (Q4).

The fourth cluster, with a mean score of 3.28, was ranked as the second most significant. It highlighted the use of ChatGPT as a tool for *targeted academic support*. Students reported using it to study topics where they identified knowledge gaps (Q6), to access relevant learning materials (Q7), and to improve their language skills (Q9).

The first cluster (mean score 3.27) revealed the *affective and motivational dimension* of ChatGPT use. Students employed the tool to generate a variety of ideas (Q13), to make the learning process more enjoyable (Q15), and to enhance their self-confidence and academic self-efficacy.

At the same time, the lowest mean score (2.83) was observed in the second cluster, which encompassed the use of ChatGPT for *developing higher-order cognitive skills*:

analytical and critical thinking (Q11), creativity (Q12), and communication skills (Q10).

Table 6
Clusters of ChatGPT use among students

Cluster	Indicator	Code	Indicator mean	Cluster mean
1	*Affective and motivational usage*			3.27
	I use ChatGPT to make my learning process more enjoyable.	Q15	3.34	
	I use ChatGPT to boost my self-confidence in language learning.	Q16	3.14	
	I use ChatGPT to enhance my learning self-efficacy.	Q17	3.12	
	I use ChatGPT to obtain different views and ideas.	Q13	3.49	
2	*Higher-order cognitive skill development*			2.83
	I use ChatGPT to learn communication skills.	Q10	2.80	
	I use ChatGPT to enhance my analytical and critical thinking skills.	Q11	2.73	
	I use ChatGPT to improve my creative thinking skills.	Q12	2.88	
	I use ChatGPT to increase my learning motivation.	Q14	2.78	
	I use ChatGPT for inspiration.	Q18	2.96	
3	*Basic usefulness and accessibility*			3.86
	Using ChatGPT is easy for me.	Q1	3.99	
	I use ChatGPT regularly.	Q2	3.42	
	I use ChatGPT effectively.	Q3	3.77	
	I use ChatGPT to learn new information.	Q4	4.24	
4	*Targeted academic support*			3.28
	I use ChatGPT to study for my exams.	Q5	3.16	
	I use ChatGPT to learn subjects I am lacking in.	Q6	3.54	
	I use ChatGPT to access learning materials.	Q7	3.35	
	I use ChatGPT because it provides versatile learning.	Q8	2.96	
	I use ChatGPT to enhance my linguistic skills.	Q9	3.42	

RQ3. How do students perceive the effectiveness of ChatGPT in supporting their German language learning?

To address *RQ3*, qualitative responses to open-ended questions (Q19-Q20) were analyzed thematically to explore how students perceived the role of ChatGPT in their German language learning. The analysis of responses to *Q19* revealed six themes describing students' perceptions of ChatGPT's impact on learning:

- Simplified explanations and a clearer understanding of complex material (38 responses).
- Personalized and interactive learning with immediate feedback (35 responses).
- Efficiency and time-saving through quick access to information (28 responses).
- Improved organization of knowledge through summaries and structured notes (15 responses).
- Support for language practice, especially in writing and grammar (10 responses).
- Critical and cautious use (8 responses).

The analysis of students' responses to *Q20* disclosed both positive and negative feelings about using ChatGPT for learning and motivation. The positive ones embraced efficiency and the opportunity to save time (34 responses), comfort and usability (22 responses), learning support and confidence (17 responses), personalized, interactive practice (19 responses). The negative ones incorporated distrust, inaccuracies, and access barriers (30 responses), as well as fear of overreliance and skill loss (18 responses). Some students (14 responses) reported that they used ChatGPT situationally (when displaced, stuck, tired, busy, needing quick inspiration) rather than as a constant study partner.

DISCUSSION

The present study examines how Ukrainian undergraduate students majoring in German use ChatGPT in their language learning, with particular attention to patterns of use, group differences, and perceived effectiveness. The findings indicate that students use ChatGPT at a moderate to high level, primarily for instrumental and cognitively supportive purposes. However, the specific reliance on ChatGPT for knowledge acquisition in the Ukrainian context suggests the tool functions as a compensatory cognitive partner. In an environment where traditional academic stability may be disrupted, ChatGPT's ease and 24/7 availability offer a reliable scaffold for self-regulated learning. This echoes the finding by Vaněček et al. (2025), arguing that its main advantage suggests "shared reliance on AI as a convenient on-demand support" (p. 10).

The data obtained from the survey reveal that students primarily employ ChatGPT as an adaptive offloading tool to retrieve new information, clarify unfamiliar topics, and support exam preparation. These findings suggest that ChatGPT has become a routine academic tool, which aligns with Nguyen and Doan Thi Hue's (2025) findings on its pedagogical usefulness. Many respondents describe the tool as a time-saving resource that offers simplified explanations and structured summaries, which supports the idea of regulated cognitive offloading, as students show their ability to take control over their learning (Abdelsaheed & Alsalamah, 2026). However, the reported data indicate that students' engagement with ChatGPT remains largely surface-level, with limited use for higher-order skills. In terms of cognitive offloading, this pattern reflects a form of unregulated offloading, when routine tasks are delegated without the necessary scaffolding for deeper cognitive processes. This shift may stem from a mismatch between task design and tool affordances: when learning tasks prioritize accuracy and completion, students are incentivized to offload for efficiency rather than engage in generative processing. Consequently, this constraint underscores the necessity of pedagogical support, as the potential of the tool for fostering generative and reflective learning is realized when students are guided to regulate their offloading, thereby mitigating the risk of the tool facilitating an illusion of competence (Hao et al., 2026; Jose et al., 2025).

Significant differences arise by gender and age, but not by language proficiency. According to correlation analysis, female students are more likely to associate ChatGPT use with creativity, enjoyment, and inspiration, suggesting stronger affective

engagement. This aligns with Reychav and McHaney (2017) and Elshaer et al. (2024), who claim that female participants often attribute more social and emotional value to technology-supported learning experiences. Moreover, in the Ukrainian context, this pattern may also reflect adaptive coping strategies, as generative AI tools offer a sense of continuity when traditional forms of teacher feedback or peer collaboration are impossible. Given the broader socio-political pressures and disruptions affecting students' academic lives, generative AI tools may provide a sense of stability, autonomy, and emotional support. However, this finding may be context-dependent and culturally mediated and needs further investigation.

Age-related patterns indicate higher perceived effectiveness among younger students and lower self-efficacy among the oldest group, suggesting that students' familiarity with digital tools, established cognitive habits, and accumulated learning experience shape their adoption of ChatGPT and their regulation of cognitive offloading. Younger students, who are more accustomed to algorithmically mediated environments, may more readily integrate ChatGPT into their learning workflows, whereas older students may experience a mismatch between traditional study strategies and AI-supported approaches. These results align with Dizon's (2024) findings, which likewise highlight significant age-related differences in patterns and purposes of ChatGPT use.

German-language proficiency level does not significantly affect frequency of ChatGPT use; however, qualitative evidence shows important differences in *how* the tool is used. Lower-proficiency students tend to rely on ChatGPT for basic explanations and grammatical support (foundational offloading), whereas more advanced students use it selectively for refinement, verification, and accuracy checking (evaluative offloading), reflecting differential offloading strategies. This finding aligns with Kupchyk and Litvinchuk's (2025) study on language learning strategies, which demonstrates that while the language proficiency level does not significantly influence metalinguistic awareness, students at different proficiency levels employ qualitatively distinct strategic approaches. The shift from foundational to evaluative uses suggests that cognitive offloading evolves alongside linguistic competence. Rather than decreasing reliance on AI, advanced learners recalibrate offloading, using the tool for precision rather than comprehension. This challenges the assumption that increased proficiency necessarily reduces dependence on AI tools, which reflects a sophisticated evolution of metalinguistic awareness.

Correlation and cluster analyses further show that ChatGPT use is systemic and interconnected, linking usability, frequency, motivation, and self-efficacy. The identification of distinct user clusters suggests that ChatGPT use is not uniform but reflects qualitatively different learning ecologies. These clusters can be interpreted as varying configurations of cognitive offloading – ranging from efficiency-driven delegation to more balanced, metacognitively regulated use – thereby providing empirical grounding for differentiated offloading profiles. Hao et al. (2026) also claim that motivated students are more likely to engage in deeper cognitive processing and critically analyse AI-generated content. At the same time, the cluster with the lowest mean scores highlights a shared limitation: students lack strategies to use ChatGPT for higher-order cognitive tasks, underscoring that access or familiarity alone is insufficient

without pedagogical scaffolding. In this context, Hao et al. (2026) state that "teachers should pair AI tools with tasks that require critical thinking, like solving problems and engaging in reflective dialogue" (p. 767). In the context of German as a foreign language instruction, this could include activities such as dialogic interaction with AI, error analysis, or comparative evaluation of AI-generated and human-produced texts. Similarly, Qu and Wu (2024) extend the use of ChatGPT to deal with challenges such as cultural adaptation, language anxiety, learner engagement, and the provision of personalized and relevant learning experiences. To integrate this into language learning classrooms, Kupchyk et al. (2025) claim that language teachers require targeted training programs and relevant institutional digital infrastructure.

As for German-language students' perceptions of ChatGPT's effectiveness, they are generally positive yet conditional. Students value its clarity, speed, and personalized support, particularly in writing and grammar, as well as report reduced anxiety and grown confidence. These findings are consistent with Hongxia and Razali (2025), who underline ChatGPT's positive impact on foreign language academic writing ability and student engagement. These benefits are especially relevant in the Ukrainian context, where opportunities for authentic interaction in German may be limited. At the same time, students express awareness of the tool's limitations, including inaccuracies and the risk of over-reliance. This cautious stance signals the birth of epistemic vigilance as students begin to develop metacognitive and ethical awareness when they regulate offloading through ChatGPT as a supplementary resource rather than a replacement for formal instruction. This finding aligns with Amin's (2026) findings, claiming that ChatGPT is viewed as a cognitive partner that encourages "reflection, critical engagement, and independent learning" (p. 33). Consequently, such reflections emphasize the importance of developing critical judgment in AI-mediated learning (Gerlich, 2025; Walter, 2024). In this respect, Xiao and Zhi (2023) claim that rich experiences with ChatGPT – through trial-and-error processes and critical evaluation of its outcome – can support the development of students' critical thinking skills.

Overall, the findings suggest that AI-supported German-language learning is not simply a matter of tool adoption but involves a reconfiguration of cognitive processes, learning strategies, and student autonomy. By situating ChatGPT use within the framework of cognitive offloading, this study highlights how generative AI reshapes not only what students do but how they distribute cognitive effort between internal and external resources.

CONCLUSION

The mixed-methods study adds beyond existing Anglocentric research, especially regarding German-language education in Ukraine. It delves into German-major students' use and perceptions of ChatGPT at a university in Ukraine. The findings demonstrate their moderate to high levels of ChatGPT operational use. Nevertheless, their engagement with the tool remains largely instrumental, as the yielded results reveal limited ChatGPT use for developing higher-order cognitive, creative, and communicative skills. Differences related to gender and age suggest that affective and experiential factors shape patterns of AI use, while the absence of German-language

proficiency-based differences indicates that the use of ChatGPT spans language levels but varies in purpose. Although students voice generally positive perceptions, these are accompanied by critical awareness of AI limitations, among them inaccuracies, over-reliance, and the need for verification. Consequently, respondents view ChatGPT as a supplementary learning resource rather than one that replaces teachers. The findings are also valuable from the viewpoint of cognitive offloading theory, particularly about students' self-regulatory capacity to determine what to offload and for what purpose, stating that cognitive offloading of German-language undergraduates is inferred rather than directly measured.

Despite its contributions, this study has some limitations: (1) the use of a convenience sample from one institution limits the generalizability of the findings; (2) reliance on self-reported data may introduce response bias related to perceived ChatGPT use. Future research should examine the longitudinal impacts of guided AI integration and explore instructional designs that support deeper cognitive engagement with AI tools.

IMPLICATIONS

This study's findings suggest that the educational value of ChatGPT depends on how its use is pedagogically scaffolded. Given that students mostly use ChatGPT for instrumental purposes, teachers should design tasks that direct students toward reflective, creative, and communicative uses of AI, which means that pedagogical scaffolding must shift from AI-as-tool to AI-as-interlocutor. This includes the integration of ChatGPT into activities that require critical evaluation of AI-generated output, comparative analysis with human-produced texts, and dialogic interactions. One effective approach is the use of AI-supported critical evaluation tasks, in which students ask ChatGPT to generate a product (e.g., a short essay, translation, or grammatical explanation) and are then required to identify inaccuracies, stylistic weaknesses, or pragmatic limitations. For example, teachers should design activities where students must prompt ChatGPT to take a specific, flawed linguistic stance (e.g., using an overly formal register in a casual dialogue) and then defend why the output is pragmatically inappropriate. To foster communicative competence, dialogic AI interaction tasks may be used. For example, students can simulate academic or professional interactions in German (email exchanges, interviews, talks, or negotiations) with ChatGPT and subsequently analyze the interaction for appropriateness, register, and cultural nuance. Pedagogical guidance should also emphasize metacognitive awareness to help students decide what to delegate to AI and how to verify accuracy. The gender- and age-related differences highlight the need for differentiated instruction that addresses affective engagement, motivation, and self-efficacy. For students who use AI for inspiration or stress reduction (notably female students in this cohort), instructors can frame AI as a brainstorming partner to lower the affective filter during the pre-writing phase. For older students or those with lower digital self-efficacy, modules focusing on prompt engineering can bridge the gap between their established study habits and new AI-mediated workflows.

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