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GenAI through students' eyes: Benefits, challenges, and beyond

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Abstract

This study explores the role of generative AI (GenAI) tools—particularly ChatGPT—in supporting students' learning experiences in a CLIL-based university business course in Japan. A total of 222 undergraduate students participated in a mixed-methods survey investigating how they perceived, used, and evaluated the impact of AI tools in the classroom and beyond. Quantitative results show that GenAI and machine translation (MT) tools were perceived as the most beneficial among various ICT resources, with 98.2% of students reporting a positive effect on their learning. Students reported frequent use of AI during and outside class, particularly for writing support, language correction, idea development, and increased efficiency. Qualitative analysis further revealed that students appreciated the tools' ability to scaffold complex tasks, improve their written output, and deepen their understanding of business-related content. However, they also raised concerns about accuracy, overdependence, and the difficulty of obtaining the desired output when prompts were unclear. Challenges were not only technical but also pedagogical, indicating a need for more structured guidance on how to use these tools effectively. Overall, the findings suggest that the integration of GenAI into content-based instruction can enhance learning if implemented with attention to student agency, digital literacy, and instructional design.

Keywords: *GenAI; language acquisition; CLIL; Self-regulated Learning.*

1. Introduction

The rapid evolution of artificial intelligence (AI) has begun to reshape higher education worldwide, transforming how students engage with content, language, and digital tools. Generative AI (GenAI) platforms such as ChatGPT are increasingly visible in university classrooms, raising both opportunities and challenges for learning and teaching. In Japan, these developments intersect with long-standing debates about language-in-education policy and the use of digital technologies in higher education, where content and language integrated learning (CLIL) models are gaining prominence.

Despite growing institutional interest in AI, the perspectives of students—the very users who must navigate these tools in their learning—have not been sufficiently emphasized. Understanding how learners perceive, use, and evaluate AI tools is essential to designing pedagogical approaches that enhance rather than hinder learning. This study therefore investigates Japanese undergraduates' experiences with GenAI and related tools in a CLIL-based business course, with the aim of identifying both perceived benefits and reported challenges.

To guide this inquiry, the study asks:

1. How do university students perceive and experience the use of AI tools, particularly ChatGPT, in their language and content learning?

2. What challenges and suggestions do they identify for the meaningful integration of AI in educational settings?

2. Literature Review

Research has highlighted the transformative potential of AI in higher education, particularly in its ability to personalize feedback, scaffold complex tasks, and improve efficiency (Luckin et al., 2016; Zhu & Wang, 2025). Systematic reviews (Zawacki-Richter et al., 2019) point to growing adoption of AI across disciplines, but also emphasize the importance of ethical awareness and critical digital literacy to avoid overreliance or uncritical use.

While a growing body of research has examined the affordances of AI for teachers, recent empirical studies have begun to foreground the perspectives of students themselves. Mahapatra (2024) demonstrated that the integration of ChatGPT as a formative feedback tool in ESL writing courses led to significant improvements in writing outcomes and positive student perceptions. Similarly, Nelson et al. (2025) found that EFL undergraduates recognized both the potential benefits and the possible drawbacks of GenAI in academic writing, often expressing a realistic and nuanced understanding of its role in their learning. In a broader cross-disciplinary context, Chan and Hu (2023) surveyed university students and reported generally positive attitudes towards GenAI, noting students' appreciation for personalized support as well as ongoing concerns about accuracy and ethics. Recent qualitative work by Kim et al. (2025) further highlights how university students use and evaluate ChatGPT-integrated writing tools, emphasizing both the perceived affordances and the limitations of AI-assisted academic writing.

Recent peer-reviewed work documents limitations that mirror students' concerns: large language models can produce inaccurate or misleading outputs and therefore require careful fact-checking (Kasneci et al., 2023). These patterns strengthen the case for explicit AI-literacy instruction in higher education—including competencies for interacting with AI systems (e.g., prompt formulation) and for critically evaluating AI outputs (Holmes & Tuomi, 2022; Long & Magerko, 2020; Miao & Holmes, 2023). Institutions likewise emphasize authorship transparency and academic integrity in GenAI-assisted work (COPE, 2023; Cotton et al., 2024).

The promise of AI lies in its ability to personalize feedback, scaffold complex tasks, and support both teachers and students in diverse educational settings (Luckin et al., 2016; Barr et al., 2024; Campos, 2025a). In the CLIL context, for instance, which is maintream at the tertiary level in Japan, GenAI can help bridge gaps in teacher expertise, allowing language specialists to provide more effective content support and content specialists to offer better linguistic guidance (Andujar & Spratt, 2023; Ohashi, 2024; Campos, 2025b). However, researchers such as Ohashi (2023) caution that effective integration demands not only pedagogical innovation but also critical awareness of digital literacy, ethical use, and the risks of over-reliance.

This study adds to these works by portraying survey-based findings on students' experiences with technology and AI in language and content learning at the tertiary level. The analysis foregrounds learners' views on the frequency, purpose, and perceived effectiveness of AI tools, with particular emphasis on ChatGPT as a facilitator of both language acquisition and subject-matter understanding.

3. Method

3.1. Context

The participants were enrolled in a compulsory "Business Data Description" course delivered through a content and language integrated learning (CLIL) approach. This course is designed to foster students' autonomy, critical thinking, and digital literacy, equipping them with both the content knowledge and language proficiency necessary

for academic and professional success in international business contexts. The course is taught mainly in English, with Japanese used for support when necessary, and focuses on foundational business topics such as marketing, data-driven decision making, and financial analysis. Students are required to analyze data sets, interpret different types of graphs, and write weekly reports that integrate content knowledge with English academic writing.

The course emphasizes both content mastery and language development. Each week, students engage in tasks such as summarizing business scenarios, describing and interpreting quantitative data, and providing written analyses and recommendations. Classroom activities are organized around three core sections: executive summary, data description, and data analysis, with students expected to develop these components in class under the instructor's guidance.

Artificial intelligence (AI) tools, particularly ChatGPT, are integrated into the course to support students' learning processes. AI is used for a variety of purposes, including content research, language support, and providing individualized feedback on students' drafts. Students were encouraged to utilize AI responsibly, using it to inform and revise their work rather than simply generating or copying text. The inclusion of a structured Writing Journal further supported self-regulation, as students submit drafts, receive AI-generated feedback, and revise their writing before final submission.

To investigate students' perspectives on the use of AI in language and content learning, an original survey was designed and administered at the end of the course. The survey instrument comprised both closed- and open-ended items, allowing for a mixed-methods approach to data analysis.

3.2. Participants

This study was conducted at a private university in Japan and data were collected during the 2024-2025 academic year. The participants were undergraduate students enrolled in a program under the faculty of Business Administration, which involves a number of classes with a focus on content and language integrated learning (CLIL). The sample included a total of 222 students mainly from the first and second years, within the departments of Marketing, Business Adminitration and Finance.

All students had prior experience using digital technologies as part of their coursework, and most reported at least some exposure to artificial intelligence tools, particularly ChatGPT, either in classroom activities or for independent study purposes. Survey participation was voluntary and anonymous, and students were informed that their responses would be used exclusively for research purposes.

3.3. Survey

The survey consisted of a combination of closed- and open-ended items organized into three main areas:

1. **Perceived Usefulness and Impact:** Students were asked to rate, using five-point Likert scales, how beneficial various tools (e.g., AI tools, machine translation, online dictionaries) were for learning business content and for developing their English writing skills. Additional items assessed the extent to which these tools were perceived as helpful in supporting specific aspects of coursework.
2. **Usage Patterns and Preferences:** Multiple-choice questions examined the frequency with which students used AI tools such as ChatGPT, both in the classroom and during independent study, as well as their preferences regarding AI tools versus machine translation (MT) when completing written assignments.
3. **Open-Ended Reflections:** The final section invited students to elaborate in their own words on the benefits and challenges they experienced when using AI tools, the ways in which AI affected their learning or writing, and their suggestions for better integrating such technologies in the curriculum.

3.4. Data Analysis

Quantitative data from closed items were analyzed descriptively, with frequencies, percentages, and mean ratings calculated to provide an overview of AI adoption, perceived usefulness, and self-reported learning outcomes. Where relevant, subgroup comparisons were explored to identify potential differences by class or usage pattern.

Qualitative data from open-ended responses were examined using thematic analysis. Responses were first reviewed and coded inductively to identify key themes relating to students' perceived benefits, reported challenges, and suggestions for improvement. Representative comments were selected to illustrate the main findings and to provide deeper insight into students' experiences beyond what could be captured through numerical data alone.

This mixed-methods approach allowed for both a broad understanding of student attitudes and behaviors and a more nuanced appreciation of the complexities and individual perspectives that characterize AI-supported learning in a CLIL context.

4. Results

4.1. Quantitative results

Among all ICT tools used in class, namely the university LMS, computer labs, online collaborative writing software, specialized browsers and AI tools, the latter rated as most beneficial for students' learning, with 81.5% considering GenAI as a tool highly beneficial and 82.9% reporting MT tools as also very helpful.

In general, almost all of the students (98.2%) considered AI tools (such as ChatGPT) as highly beneficial for enhancing their overall learning experience. In terms of frequency, half of respondents (50%) reported using AI tools during every lesson, with an additional 25.7% who use them in most lessons. Only 4.1% reported rarely or never using AI in class. Outside class, when students used AI tools for completing class assignments or activities, 42.8% used them very often and 38.3% used them often. This clearly demonstrates the high engagement and prevalence AI tools have for students' learning, both in and out of classroom settings.

When asked how much AI tools helped them learn business-related content, 43.7% and 53.6% reported considering these tools very or somewhat useful (respectively), with 72.5% of students preferring GenAI over other ICT tools. On the other hand, comparing all the ICT tools used, machine translation was weighted as being the most useful for learning English (76.1%). For writing assignments, 50% of students reported relying primarily on these tools, 27.9% preferred GenAI tools, and 21.6% used both equally. In terms of the distribution of preferences among GenAI and MT tools, 34.2% of students preferred ChatGPT, 31.5% used DeepL and 30.6% preferred Google Translate.

4.2. Qualitative results

Several students (90) identified ChatGPT or "AI tools (ChatGPT)" as their favorite technological tool used in class. The most common reasons cited were the ability to check and correct English writing, quickly receive feedback, and efficiently generate or organize ideas for assignments (Table 1). Many students emphasized how ChatGPT enabled them to confirm the accuracy of their English before submission and helped them improve their overall ability to express themselves in writing.

Table 1. Students' reasons for choosing ChatGPT/GenAI as their favorite ICT tool in class.

Themes (number of entries)	Excerpted samples (translated)
Writing Support and Correction (22)	• "I could check and correct my mistaken sentences in advance" • "I was able to have my own writing checked and corrected." • "it gave me feedback so I could write more concise English sentences."

Language Improvement (14)	• "It has natural conversation ability and versatility, and it responds flexibly according to my intentions. I found that just this one tool was enough without having to use many different tools." • "I could compare my own opinions with it, and I was able to gain expressions and knowledge that I hadn't thought of myself." • "ChatGPT helped me improve my English by providing new ways to express my ideas."
Instant Feedback and Convenience (13)	• "It was helpful to be able to quickly look up English business terms I didn't know at all." • "ChatGPT quickly checked and corrected the sentences I wrote, which was convenient. It also showed me what was missing and suggested clearer ways to express myself, which was educational." • "It could instantly find mistakes in grammar and usage."
Idea Generation and Organization (4)	• "It gives me ideas I wouldn't have thought of myself." • "It is my favorite because it helps generate ideas and create better sentences." • "It was very helpful for structuring my writing."

As seen in Table 2, students reported that using AI tools in class helped them improve their learning experience in several concrete ways. Many mentioned that AI tools enabled them to identify and correct grammar and writing mistakes, allowing for more accurate English output and making it easier to revise their work. Some students appreciated the ability to quickly analyze and check whether their writing met assignment criteria, noting that this saved time and made their workflow more efficient.

Others described how AI tools provided them with new ideas, alternative expressions, and vocabulary, which helped them expand the content and quality of their assignments. Several students said AI support gave them access to multiple perspectives and advice from different fields, which broadened their knowledge. Students also highlighted improvements in their overall English proficiency, as interacting with AI exposed them to more natural, correct English. Finally, some students felt that using AI increased their motivation and confidence, as it helped them discover mistakes they might not have noticed and learn from them.

Table 2. Ways GenAI helped students improve their learning experience.

Themes (number of entries)	Excerpted samples (translated)
Broader Knowledge/Perspective (48)	• "I learned from broader perspectives beyond my own knowledge, widening my viewpoint." • "It suggested things I didn't know or think of, broadening my perspective." • "I gained more knowledge and ways of thinking."
Grammar/Writing Correction (45)	• "Corrections were easy to understand, and specific suggestions helped improve my writing skills and expression knowledge." • "I could understand grammar and how to phrase things when creating sentences." • "It allows me to check grammar correctness and meaning clarity, and provides suggestions."

Efficiency/Speed (42)	• "It quickly analyzed whether my English sentences met the assignment requirements, which saved time." • "I could have my writing corrected not only during class but anytime and anywhere in a short amount of time." • "It concisely summarizes lots of information by points, efficiently helping me research unknown business terms."
Improving Expressions/Paraphrasing (31)	• "It was helpful to fix expressions that sounded natural in Japanese but unnatural in English." • "It accurately pointed out awkward expressions and typos, helping me understand how to phrase natural sentences." • "I was able to broaden the range of my expressions and easily look things up, which made learning more efficient."
English Improvement [General] (28)	• "I think I improved my English skills by learning unfamiliar words and ways of expressing myself." • "I could learn proper English." • "I now understand how important English is in regards to business, and it has improved my vocabulary and communication."
Vocabulary Development (24)	• "It taught me words I didn't know, significantly improving my reading skills." • "Since I didn't remember grammar, it suggested expressions close to what I wanted, increasing my vocabulary." • "AI tools can help you to learn English words and phrases you don't know."
Understanding Business Content (23)	• "It explained business topics in detail and simplified explanations of parts I didn't understand, deepening my comprehension." • "It teaches me business content that I'm not very familiar with, so my knowledge increases." • "It taught me things I hadn't known before, allowing me to include detailed content in my assignments."
Idea Generation (18)	• "I could learn ideas that I didn't have myself." • "AI gives me ideas that I could never think of on my own, so the AI's suggestions, which reflect various world situations, have helped me to deepen my knowledge." • "When thinking about ways to increase sales in business, I asked the AI tool and it gave me ideas that I would not have thought of myself."
Motivation (6)	• "Understanding unknown business terms and strategies increased my motivation and improved my English learning." • "My motivation increased as my knowledge grew." • "I became able to participate more deeply and actively in class."

As seen in Table 3, many students reported that although AI tools were helpful, they often produced mistranslations or inaccurate output. Some responses described situations where AI-generated English was grammatically correct but contextually inappropriate, requiring careful checking. Others mentioned over-reliance on AI, feeling that depending too much on these tools might reduce their own learning effort or critical thinking, as well as decrease their English writing skills and vocabulary. Many other students mentioned how AI answers were not what they

were expecting and how the entries were misaligned or unrelated to the content involved, which made students distrustful of the content provided.

A smaller number of students noted difficulty crafting prompts or using the tools effectively, and a few highlighted issues with understanding context, where AI failed to grasp nuances or specific details of the task. A handful reported slow responses or occasional technical issues, while others pointed out instances of vague or overly general answers that did not fully meet their needs.

Table 3. Challenges students reported when using GenAI.

Themes (number of entries)	Excerpted samples (translated)
Mistranslations / Inaccurate Output (53)	• "AI is inconsistent; an older version might say 'this sentence is correct,' but a newer one might say 'this sentence is wrong'." • "Sometimes it was difficult to judge because feedback wasn't always accurate." • "It doesn't always give accurate information."
Over-Reliance / Dependency (28)	• "I ended up relying on AI too much." • "Becoming overly dependent on AI tools." • "Because it's convenient, I depended on it and lost the habit of coming up with ideas myself."
Unreliability / Misaligned Output (27)	• "There was a mismatch between the answer AI provided and the answer I wanted." • "I couldn't fully trust it." • "There was no credibility of suggested content."
Difficult language / Complex answers (15)	• "Difficult words and grammar appeared." • "When difficult words or unknown source material appeared, I didn't know how to write." • "Difficult suggestions."
Complex Prompts / Difficulty in Use (12)	• "The fact that I had to give accurate instructions to ChatGPT, etc., or I would get a misguided answer." • "It took a lot of time to input instructions." • "It sometimes performed a task different from what I wanted, and giving instructions was difficult."
Overgeneralization / Vagueness (8)	• "In the assignment to create sentences, the corrections from ChatGPT were unclear." • "It gave general proposals, so I couldn't get interesting or clever expressions and sometimes didn't find it helpful." • "Some suggestions were ordinary/general".
Lack of Context / Understanding (7)	• "When an unintended answer came back, I didn't know how to deal with it." • "On parts involving human emotion, AI often couldn't understand." • "There were differences between the teacher's guidance and AI's suggestions."

Slow Response / Technical Issues (5)	• "Some information lacked accuracy, so it took extra time to check the original information." • "Sometimes bugs occur." • "In-app settings *[were diffcult]* and so on."

Students offered a wide range of suggestions to enhance the use of AI tools in classroom learning. The most frequent recommendations focused on improving support for language development, particularly vocabulary and writing accuracy. Several responses emphasized the importance of encouraging students to write more independently and avoid over-reliance on AI. Others proposed integrating AI more purposefully into classroom activities, such as for prewriting tasks or to support feedback and revision. Suggestions also included improving how students communicate with AI tools, developing better prompting strategies, and ensuring greater consistency and reliability in AI-generated responses. A few students recommended broader applications, including learning about cultural content or comparing grammar and translations.

5. Discussion

The findings indicate widespread uptake and largely positive perceptions of GenAI and MT in a CLIL business course, with almost all students reporting benefits and frequent use both in and outside class. These patterns echo broader higher-education trends that document rapid diffusion of AI tools alongside perceived productivity and scaffolding gains (Zawacki-Richter et al., 2019; Nelson et al., 2025; Mahapatra, 2024; Kim et al., 2025). In the sample, 98.2% considered AI beneficial; 50% reported using AI every lesson (a further 25.7% in most lessons); and out-of-class use was similarly high—evidence of normalization of AI-mediated study routines. At the same time, students credited GenAI with supporting idea generation, feedback, and language correction and rated MT as especially helpful for writing accuracy, which suggests learners strategically mobilize different tools for different sub-tasks.

This division of labor between GenAI and MT aligns with a CLIL-specific reading of the data. In CLIL, learners juggle conceptual understanding and language control; your students leaned on GenAI to expand ideas and organize discourse (content-forward support) while relying on MT for lexical/grammatical precision in written products (language-forward support). Prior work suggests such complementarities: GenAI can scaffold complex tasks and rhetorical moves, while MT is well suited to micro-level repair and lexicalization (Andujar & Spratt, 2023). Framed this way, the results extend beyond generic "AI usefulness" claims by showing how learners orchestrate tool ecosystems to meet CLIL's twin aims of content mastery and language development in a Japanese university setting.

Nevertheless, students also reported limitations that mirror concerns in the wider literature: inaccuracies or misalignments in outputs, difficulty obtaining desired responses without clear instructions, and risks of overreliance. These themes map onto documented issues with large language models—susceptibility to error or "hallucination," sensitivity to prompt quality, and potential displacement of independent reasoning (Kasneci et al., 2023). They also point to a practical need for explicit AI-literacy instruction in higher-education curricula, including prompt formulation, source-checking, and calibration strategies for using AI as a fallible collaborator rather than an oracle (Holmes & Tuomi, 2022; Long & Magerko, 2020; Miao & Holmes, 2023).

Importantly, many students offered actionable suggestions—more structured guidance, clearer prompting, and teacher-mediated integration—which align with calls for participatory, learner-centered AI adoption (Chan & Hu, 2023). Building on these insights and based on former studies in the same vein (Campos, 2025b), I propose three design principles for CLIL contexts:

1. **Process-oriented AI use.** Position GenAI at early stages (brainstorming, planning, outlining) and MT at late stages (micro-editing), making the division of labor explicit and assessable.

2. **Prompting as a teachable skill.** Introduce brief, assessed prompt-design routines (e.g., task framing, constraints, exemplars) and require reflective "AI-use notes" that explain model choices, checks performed, and revisions made.
3. **Triangulated feedback.** Encourage a cycle of AI feedback → peer review → teacher feedback, with rubric-anchored checks (accuracy, relevance, register) to reduce overreliance and surface discrepancies for discussion (Bond et al., 2024; Miao & Holmes, 2023).

Ultimately, the findings demonstrate that while students widely embrace GenAI for its practical advantages, they are also critically aware of its limitations. This dual awareness reflects a more mature stage in the evolution of GenAI in education, where learners not only use these tools but actively evaluate their role in shaping learning outcomes.

6. Conclusions

This study explored how undergraduate students in a CLIL business course perceived and utilized AI tools to support their language and content learning. Quantitative data revealed widespread use of GenAI and MT tools both in and out of the classroom, with students reporting high levels of usefulness, particularly in enhancing comprehension, improving writing, and completing assignments more efficiently. Qualitative responses further illuminated how AI facilitated broader knowledge acquisition, idea development, and increased learner confidence, while also exposing recurring challenges such as trust in the accuracy of output, misalignment between prompts and responses, and overdependence on the technology.

Although many students expressed appreciation for AI as a learning aid, they also offered nuanced suggestions for more structured and pedagogically grounded integration into classroom activities. These included clearer guidance, training on prompt formulation, and teacher-facilitated models of responsible AI use. Finally, AI tools hold transformative potential for CLIL contexts, but realizing this potential requires intentional instructional design, ethical awareness, and continuous reflection from both students and educators. Future research should examine how AI-enhanced learning affects actual performance over time, and how teachers can scaffold AI use without diminishing learners' autonomy or critical thinking.

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