

# Leveraging Artificial Intelligence to Enhance English Proficiency and Accounting Learning among Accountancy Students

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## ABSTRACT

This study examined the use of artificial intelligence (AI) tools among accounting students and their perceived influence on English proficiency and learning of accounting subjects. A total of 238 accounting students participated in the study. Descriptive statistics and chi-square tests were used to analyze patterns of AI tool use, levels of self-perceived English proficiency according to the Common European Framework of Reference for Languages (CEFR), and the relationships between AI use and learning activities, English proficiency development, and accounting subjects. Results reveal that the majority of students reported using multiple AI tools for academic purposes. Among individual AI platforms, ChatGPT was the most frequently used, followed by Perplexity, QuillBot, Grammarly, and Google Translate. Most students perceived their English proficiency at the independent user levels, particularly Upper-Intermediate (B2) with 97 students and Intermediate (B1) with 88 students. Only a small number identified themselves at the elementary or pre-intermediate levels. In terms of AI utilization, students reported a high level of AI use across learning activities, English proficiency development, and learning accounting subjects. Inferential analysis showed no significant relationship between AI use in learning activities and accounting subjects and students' perceived English proficiency. However, a significant relationship was found between AI use for English proficiency development and students' perceived English proficiency. The findings imply that accounting programs should integrate structured AI literacy training to guide students in strategically leveraging AI tools for mastering accounting concepts and purposefully enhancing English proficiency.

**Keywords:** Artificial intelligence tools, English proficiency, Accounting education

## INTRODUCTION

Artificial intelligence (AI) helps an organization maximize output, systemize day-to-day accounting operations, improve compliance with standards, and detect fraud in the field of accountancy (Alruwaili & Mgamal, 2025). In addition, AI helps accountants simplify and speed up repetitive tasks and take on analytical and strategic functions (Opoku, Owusu, Gomashie, & Salifu, 2025). Tandiono (2023) stated that AI has been applied in auditing and financial analysis. Likewise, Kokina, Blanchette, Davenport, and Pachamanova (2025) found that AI tools have been widely used in auditing. Moreover, Tandiono (2023) argued that AI looks closely at how accountancy is taught and applied. This widespread use of AI prompts scholars to pay closer attention to how accountancy is taught and learned (Blondeel, Bullock, Gaskin, Schuetzler, Serre, Steffen, Wells, & Wood, 2025; Gella, Patoy, Lumambas, & Decena, 2025).

Beyond its accountancy role, artificial intelligence enhances adaptive learning, learning assessment, and student engagement (MPOFU & SWART, 2024; Vieriu & Petrea, 2025; Wale-Fadairo & Ige, 2025). To enhance academic performance, students increasingly use AI tools (Zhou & Luo, 2025). Furthermore, they use AI-powered speaking tools to improve their English proficiency and learning engagement (Huu, 2025). Dja'far, Agustina, and Hamidah (2025) found that the English language skills of accounting students at a higher education institution improved through the use of AI. Moreover, Negrila (2023) argued that AI engages students in activities such as writing business memoranda and conducting audit presentations in English. Also, Hasan (2021) claimed that AI enhances students' ability to engage in formal English communication.

Although artificial intelligence offers many benefits, challenges remain. Limited faculty knowledge of AI, infrastructure gaps, and ethical concerns such as bias, privacy, and academic dishonesty exacerbate adoption barriers (Singh, Nicolas, Monsang, & Singh, 2025; Alruwaili & Mgammal, 2025). Many schools are not well acquainted with AI tools (Alahmed, 2025). Generative artificial intelligence may also produce inaccurate or poorly justified responses, particularly in tasks that require sound assessment (Albuquerque & Gomes dos Santos, 2026). Within these bounds, curriculum development, technological competence, and accounting expertise are essential, as they collectively build preparedness for artificial intelligence (Jefriyanto, Nuri, Febriyanti, & Ulwan, 2025). According to Blondeel et al. (2025) and Gella et al. (2025), successful outcomes rely on organized integration of AI. This study, therefore, investigates the responsible integration of artificial intelligence to reinforce accounting skills and English language proficiency in higher education. The existing literature remains limited in its exploration of how students strategically integrate multiple AI tools into their learning practices, making the current study a valuable contribution to understanding AI-assisted learning behaviors in higher education.

## Theoretical Framework

This study is primarily anchored in three theories: Constructivist Learning Theory of Jean Piaget (1896-1980), Social Constructivist Theory of Lev Vygotsky ((1925-1934), and the Technology Acceptance Model (TAM) of Fred Davis (1991). These theories provide conceptual underpinnings for understanding how accountancy students use artificial intelligence (AI) tools to learn English and accounting concepts. Piaget's Constructivist Learning Theory posits that learners build knowledge through direct experience and interaction with their environment (Erawati & Adnyana, 2024). In this study, AI tools serve as interactive platforms that allow accountancy students to accomplish accounting tasks and develop English proficiency experientially. By engaging with AI-generated content, students continuously reconstruct their understanding of both accounting and English concepts, aligning with Piaget's view that learning is a process of changing how one thinks based on real experiences. Vygotsky's Social Constructivist Theory complements Piaget's perspective by showing how social interaction and cultural tools support cognitive development (Yusof, 2021). According to Vygotsky, higher-order thinking takes hold when students work together in their Zone of Proximal Development (ZPD). In this research, AI allows for scaffolding of students' learning in both English and accounting.

The framework incorporates Davis's (1991) Technology Acceptance Model (TAM) to explain students' actual use of AI. TAM suggests that users' behavioral intention to adopt a technology depends on two key perceptions: perceived usefulness (how much the tool helps accomplish tasks) and perceived ease of use (how simple and comfortable the tool is to use). In this study, the extent to which students use AI for learning activities, to develop English proficiency, and to learn accounting subjects is understood as a function of their beliefs about how useful and easy to use these tools are. TAM thus links Piaget's and Vygotsky's cognitive-constructivist processes to measurable patterns of technology use, reflected in research questions about the frequency of use, self-perceived English proficiency, and the extent of AI use in specific domains.

## Statement of the Problem

The rapid integration of artificial intelligence (AI) in education has created new opportunities to enhance student learning across various disciplines. In accountancy education, students are expected to develop both technical accounting competencies and strong English communication skills, which are essential for academic and professional success. AI tools are gaining traction in academic settings to support learning activities and improve language skills. However, there is still limited research on how accountancy students specifically use AI tools for learning accounting subjects and for developing English proficiency. There is also a limited understanding of students' self-perceived English proficiency levels and whether relationships exist between AI use and perceived English proficiency. This gap is particularly significant in multilingual educational contexts where English serves as the primary language of accounting standards and international business communication. Without sufficient understanding of how AI supports these areas, opportunities to maximize AI's educational potential may remain underutilized.

To address these gaps, this study investigated the use of artificial intelligence among accountancy students to improve their English proficiency and accounting learning. Specifically, the study sought to determine the AI

tools most frequently used by students for learning purposes, identify students' self-perceived English proficiency levels, and examine the extent of AI use across learning activities, English proficiency development, and learning accounting subjects. Furthermore, the study examined whether a significant relationship exists between students' extent of AI use in learning activities, for the development of English proficiency, and in learning accounting subjects, and their perceived English proficiency. The results of this study may provide insights into how educators and institutions can develop more effective AI-assisted learning strategies that support both language development and accounting education.

## METHODOLOGY

### Research Design

This study employed a quantitative, descriptive-correlational research design to examine the utilization of artificial intelligence (AI) tools among accountancy students at a state university and their perceived influence on English proficiency and learning accounting subjects. A descriptive approach was deemed suitable, as the study sought to identify patterns of AI tool usage, levels of self-perceived English proficiency according to the Common European Framework of Reference for Languages (CEFR), and the extent to which students use AI across different curriculum components. The correlational component of the research design enabled the researchers to examine relationships among variables, particularly the association between AI use and the specified curriculum components. This is evident in the use of descriptive statistics such as frequency, percentage, mean, and standard deviation, alongside inferential statistics, specifically chi-square tests, to determine whether significant relationships exist among variables. Total enumeration was used to determine the study respondents. Out of 244 officially enrolled Bachelor of Science in Accountancy students at a state university during the First Semester of the Academic Year 2025-2026, only 238 were able to participate in this study, as the remaining 6 were absent when the research instrument was administered. The majority of respondents were female (182), while 56 were male. First- and second-year students comprised the largest groups, while third- and fourth-year students were represented in smaller numbers. Most respondents were within the 18–20 age bracket.

The data gathering instrument used in this study was a researcher-developed questionnaire designed to gather comprehensive data on accountancy students' use of artificial intelligence (AI) and their perceptions of its role in enhancing English proficiency and learning in accounting subjects. The questionnaire is divided into two main sections. Section A collects demographic profile of respondents, including year level, age range, types of AI tools used, and self-assessed English proficiency based on the Common European Framework of Reference (CEFR) for languages. Section B consists of statements measuring students' levels of agreement regarding AI use across four key dimensions, namely: (a) Use of AI in Learning, (b) AI and English proficiency development, (c) AI and learning in accounting subjects, and (d) AI and learning activities. Responses were measured on a five-point Likert scale from strongly disagree to agree, enabling strong quantification of perceptions and experiences.

The content validity of the instrument was assessed using Lawshe's Content Validity Ratio (CVR) with six expert validators: 3 English majors and 3 Certified Public Accountants. Based on Lawshe's formula, items rated as "Essential" by all six experts obtained a CVR of 1.00 and were retained. In comparison, items rated as essential by only five experts obtained a CVR of 0.67, indicating the need for revision. Out of the 25 items, 14 items met the acceptable CVR threshold and were retained, while 11 items fell below the required critical value and were recommended for revision. After revision, the 11 items were deemed essential by the validators. Hence, the instrument obtained an average of 1.00, indicating that the scale possesses generally strong content validity. As regards reliability, the instrument was administered to 52 Bachelor of Science in Accountancy students enrolled at a different higher education institution in the region during the First Semester of the Academic Year 2025-2026. The 25-item survey questionnaire yielded a Cronbach's alpha of 0.963, indicating excellent internal consistency.

Before the study was conducted, permission was secured from the Dean of the College of Business Management and Accountancy, the academic unit to which the Bachelor of Science in Accountancy program belongs. Informed consent was likewise obtained from all respondents prior to their participation. Data were gathered

using a researcher-developed 25-item survey questionnaire designed to determine whether artificial intelligence enhanced the learning of 238 Bachelor of Science in Accountancy students in both their English proficiency and accounting subjects. These students were enrolled at a state university during the First Semester of the 2025–2026 academic year. The questionnaire was administered via Google Forms, and the collected responses were exported to an Excel file. In Excel, the statistician recoded responses into numerical values to facilitate statistical analysis in JASP. The statistical results were then stored in digital folders on the 2 authors' computers.

## RESULTS AND DISCUSSION

This section presents the findings from the survey data addressing the six research questions, which explored students' use of artificial intelligence (AI) tools for learning purposes, their perceived English proficiency, the extent of AI integration across learning activities, English proficiency development, and accounting subjects, as well as perceptions of AI's effectiveness and the relationships among these variables. Descriptive statistics reveal the most frequently used AI tools (RQ1), students' self-perceived English proficiency levels (RQ2), and the extent of AI use in the specified curriculum components (RQ3). Inferential analyses, including correlation tests, examine the significant relationships between AI usage patterns and the specified curriculum components (RQs 4–6). These results illuminate the role of artificial intelligence in bridging English language proficiency and learning accounting subjects.

Table 1 Artificial Intelligence Tools Most Frequently Used by Students for Learning Purposes

|                               | Frequency | Percentage |
|-------------------------------|-----------|------------|
| AI-powered tutoring platforms | 1         | 0.42       |
| ChatGPT                       | 41        | 17.23      |
| Google Translate              | 5         | 2.10       |
| Grammarly                     | 5         | 2.10       |
| Perplexity                    | 11        | 4.62       |
| Quillbot                      | 6         | 2.52       |
| Multiple AI tools             | 165       | 69.33      |
| Others                        | 4         | 1.68       |
| Total                         | 238       | 100.00     |

The table shows that a total of 238 accounting students use a range of artificial intelligence tools for learning, with the largest group (165 students or 69.33%) reporting that they use multiple AI tools rather than relying on a single platform. ChatGPT emerges as the most frequently used individual AI tool, with 41 students (17.23%) indicating that they use it, suggesting that it is the primary stand-alone AI assistant for their learning tasks. Perplexity is used by 11 students (4.62%), indicating a smaller but noticeable share of users who prefer or supplement their learning with this tool. Other specialized tools such as QuillBot (6 students or 2.52%), Grammarly (5 students or 2.10%), and Google Translate (5 students or 2.10%) are used by fewer students, which may reflect their more specific functions like paraphrasing, grammar checking, and translation rather than broad academic assistance. AI-powered tutoring platforms (1 student or 0.42%) and “Others” (4 students or 1.68%) register the lowest usage, implying that highly structured or less familiar AI systems are not yet widely adopted. Overall, the distribution suggests that accounting students prefer a flexible, blended approach to AI, combining general conversational agents like ChatGPT and Perplexity with niche tools to support different aspects of their learning.

While previous studies primarily focused on identifying the popularity and usefulness of AI tools, the present study also examined the distribution of specific AI tool use among university students, including a preference for combining general-purpose AI tools with specialized applications such as Grammarly, QuillBot, Perplexity, and Google Translate. The present study found that accounting students use multiple platforms, with ChatGPT second in popularity. On the contrary, previous research shows that university students rely on ChatGPT or other chatbots rather than multiple artificial intelligence tools. Vieriu and Petrea (2025) reported that 88.2% of students at the National University of Science and Technology POLITEHNICA Bucharest used ChatGPT as one of their AI tools for academic development, highlighting the dominant role of conversational AI in higher education. Likewise, the study by Karunanayaka, Weerasinghe, and Somarathna (2025) found that ChatGPT was the most widely used AI tool among students, followed by Grammarly, QuillBot, and Gemini, suggesting that undergraduates tend to combine multiple AI tools depending on their academic needs. This suggests a flexible, blended approach to AI-assisted learning. The findings also support the claim that students use AI tools for varied academic functions.

Furthermore, the study of Szumski, Dziembek, and Kuczera (2025) similarly found that chatbots were the most popular AI tools among university students in Poland, with almost all respondents reporting chatbot use within the previous month. Their conclusion that conversational AI models such as ChatGPT serve as a primary point of contact with AI technologies closely parallels the present finding that ChatGPT remains the most frequently used stand-alone AI tool among accounting students. Moreover, Codien, Aldaca, Claor, and Visco (2026) also found that students commonly use ChatGPT to strengthen grammar and vocabulary and generate ideas. Their overall results indicate that AI, particularly ChatGPT, positively supports language learning and that more consistent institutional guidelines can enhance its effective and ethical use. Fachrurrozie, Nurkhin, Santoso, Asrori, and Harsono (2025) conducted a survey involving 124 students from the Faculty of Economics and Business at Universitas Negeri Semarang, focusing on accounting and accounting education. The findings indicated that ChatGPT and Canva are the most commonly utilized AI tools among students in accounting courses.

Table 2 Level of English Proficiency as Perceived by Students

| Variables   | English Proficiency |               |                 |                   |                       |                         | Total |
|-------------|---------------------|---------------|-----------------|-------------------|-----------------------|-------------------------|-------|
|             | Advanced (C1)       | Advanced (C2) | Elementary (A1) | Intermediate (B1) | Pre-Intermediate (A2) | Upper-Intermediate (B2) |       |
| Sex         |                     |               |                 |                   |                       |                         |       |
| Female      | 21                  | 24            | 0               | 68                | 7                     | 62                      | 182   |
| Male        | 6                   | 9             | 1               | 20                | 3                     | 17                      | 56    |
| Year level  |                     |               |                 |                   |                       |                         |       |
| First Year  | 10                  | 18            | 1               | 46                | 6                     | 39                      | 120   |
| Fourth Year | 4                   | 2             | 0               | 6                 | 0                     | 8                       | 20    |
| Second Year | 7                   | 8             | 0               | 28                | 4                     | 17                      | 64    |
| Third Year  | 6                   | 5             | 0               | 8                 | 0                     | 15                      | 34    |
| Age         |                     |               |                 |                   |                       |                         |       |
| 18-20       | 16                  | 27            | 0               | 74                | 9                     | 62                      | 188   |
| 21-23       | 11                  | 5             | 1               | 13                | 1                     | 17                      | 48    |

|       |    |    |   |    |    |    |     |
|-------|----|----|---|----|----|----|-----|
| 24-26 | 0  | 1  | 0 | 1  | 0  | 0  | 2   |
| Total | 27 | 33 | 1 | 88 | 10 | 97 | 238 |

The table 2 indicates that most accounting students perceive themselves to be at the independent user levels of English (B1–B2), with very few at the lowest (A1) or highest (C2) ends of the Common European Framework of Reference for Languages (CEFR) scale. Of 238 students, most self-rated as Upper-Intermediate (B2), with 97, followed by Intermediate (B1) with 88. B2 learners grasp main ideas in complex texts, communicate fluently, and write detailed texts expressing opinions on diverse topics. B1 learners handle familiar topics and everyday situations, such as travel, and produce simple, connected texts on known subjects. Advanced levels account for 27 students at C1 and 33 at C2, suggesting that a smaller but still substantial segment believe they can use English fluently for more demanding academic and professional purposes. In contrast, only 10 students place themselves at Pre-Intermediate (A2) and just 1 at Elementary (A1), indicating that very few perceive themselves as basic users with limited functional ability in the language.

By sex, both female (182) and male (56) students cluster in the B1 and B2 bands, but females numerically dominate each level, reflecting their larger representation in the sample rather than a distinctly different pattern of perceived proficiency. When grouped by year level, first- and second-year students contribute the highest numbers in B1 and B2, but even third- and fourth-year students mostly remain within these same bands, implying that progression through the program does not strongly shift self-ratings into C1–C2 for the majority. In terms of age, students aged 18–20 form the bulk of the B1 and B2 categories, while those aged 21–23 and the very small 24–26 group show similar distributions but in much smaller counts, consistent with the typical age structure of undergraduate cohorts.

Overall, the distribution across sex, year level, and age suggests that accounting students largely see themselves as independent users of English, with a minority who feel truly proficient and very few who believe they are still at basic beginner stages, aligning with how CEFR levels describe functional academic use of the language.

The findings of the present study generally corroborate the results of Albuquerque (2022), which explored university students’ perceptions of their CEFR levels in Portugal. Similar to the current study, Albuquerque (2022) found that students could identify their perceived English proficiency levels, although discrepancies existed between students’ self-assessments and teachers’ evaluations. The study revealed that many students’ perceptions were relatively close to the teacher-assigned CEFR levels, suggesting that learners have some awareness of their English abilities. However, Albuquerque (2022) also reported that nearly half of the respondents had self-perceptions that differed from teacher evaluations and that some students had no perception of their CEFR level at all, implying that self-assessment may not always accurately reflect actual proficiency. Likewise, the study of Phoolaikao and Sukying (2021) partly contradicts the present findings, as Thai preservice teachers were found to have limited understanding of the CEFR despite expressing positive attitudes toward its implementation. Their limited awareness suggests that some learners may not fully understand CEFR descriptors when evaluating themselves. Nonetheless, both studies highlight the importance of learner awareness and self-perception in language proficiency assessment. It is also noteworthy that the variables examined in the present study, particularly sex, year level, and age in relation to perceived CEFR proficiency, were not explored in the cited studies. Moreover, only a limited number of studies have specifically investigated students’ perceptions of their own CEFR levels, making the current research a valuable contribution to the literature on self-perceived English proficiency among university students.

Table 3 Extent of Use of Artificial Intelligence in Terms of Learning Activities, Development of English Proficiency, and Learning Accounting Subjects

| Artificial Intelligence            | M    | SD   | Interpretation |
|------------------------------------|------|------|----------------|
| Learning activities                | 4.07 | 0.54 | High           |
| Development of English proficiency | 4.09 | 0.62 | High           |

|                              |      |      |      |
|------------------------------|------|------|------|
| Learning accounting subjects | 3.75 | 0.84 | High |
| Whole                        | 3.97 | 0.57 | High |

*Note: 1.00-1.49 Very low, 1.50-2.49 Very low, 2.50-3.49 Average, 3.50-4.49 High, and 4.50-5.00 Very high*

Table 3 summarizes accounting students' self-reported extent of AI use across key areas. All categories show high usage, with "Development of English proficiency" scoring highest ( $M=4.09$ ,  $SD=0.62$ ), indicating students frequently leverage AI tools for language-related tasks such as writing improvement. "Learning activities" follows closely ( $M=4.07$ ,  $SD=0.54$ ), reflecting broad AI integration in general study routines, while "Learning accounting subjects" is slightly lower ( $M=3.75$ ,  $SD=0.84$ ), possibly due to greater variability (higher  $SD$ ) from concerns over AI accuracy in solving accounting problems. The overall ( $M=3.97$ ,  $SD=0.57$ ) confirms high AI reliance across domains, suggesting these tools are deeply embedded in students' academic workflows despite nuanced differences by subject area.

The present study revealed that accounting students demonstrated the highest extent of AI use in the development of English proficiency ( $M=4.09$ ,  $SD=0.62$ ), indicating that students frequently use AI tools to improve writing, grammar, vocabulary, and other language-related skills. This finding corroborates the studies of Ocampo (2025), Khan and Ong (2025), and Karatas, Abedi, Ozek Gunyel, Karadeniz, and Kuzgun (2024), which emphasize that AI tools significantly enhance English language learning, student engagement, motivation, and language fluency. Likewise, Khan and Ong (2025) highlighted that AI technologies, particularly ChatGPT, improve speaking proficiency through personalized learning experiences and immediate feedback. Similarly, Xiao and Zhi (2023) found that students used ChatGPT as a learning partner for language-related tasks while critically evaluating AI-generated outputs. These findings collectively support the present study's conclusion that AI tools are widely used to strengthen English proficiency and academic performance in language-related areas.

Similarly, the present study found a high extent of AI use in learning activities ( $M=4.07$ ,  $SD=0.54$ ), suggesting that students broadly integrate AI tools into their study routines and academic tasks. This finding aligns with Ocampo (2025) and Karatas et al. (2024), who reported that AI tools improve participation, motivation, collaboration, engagement, and feedback utilization in learning environments. In the same manner, Jingbo and Zaini (2026) found that AI enhances learning efficiency and promotes higher-order thinking skills, particularly critical thinking. The studies imply that AI has become an important component of students' academic workflows and learning experiences. Vieriu and Petrea (2025) reported that AI technologies have become deeply integrated into students' academic activities, with most respondents believing that AI improves academic performance, learning efficiency, and access to educational resources. These findings corroborate the present study's indication that AI supports both learning activities and the enhancement of English proficiency through faster access to information, assistance in writing, and personalized learning support. However, their study also highlighted concerns regarding over-reliance on AI, reduced critical thinking, inaccurate AI-generated information, and academic dishonesty, suggesting that although AI offers substantial educational benefits, students remain aware of its potential limitations and ethical risks. However, Jingbo and Zaini (2026) also identified concerns regarding academic integrity, overreliance, and data privacy. These concerns may explain the varying levels of AI use among students and suggest that while AI tools are highly integrated into learning activities, students may still exercise caution in their utilization.

In terms of learning accounting subjects, the present study revealed a slightly lower but still high extent of AI use ( $M=3.75$ ,  $SD=0.84$ ), with greater variability among respondents. This finding corroborates the studies of Ahadi and Jatmika (2025), who found that AI assists students in understanding complex accounting concepts through personalized learning and instant feedback. Likewise, Tandiono (2023) emphasized that AI significantly affects the accounting profession and accounting education, requiring both educators and students to adapt to technological advancements. Similar findings were reported by Szadziwska and Kujawski (2024), who observed that accounting students are aware of both the positive and negative implications of AI in the accounting field. Furthermore, Trivedi (2025) found that students generally hold positive perceptions regarding AI's ability to improve efficiency, accuracy, and innovation in accounting and finance. Supporting these findings, Guinto, Lalu, Magante, Mesa, Liling, and Jimenez (2025) found that AI tools such as ChatGPT and Grammarly

enhanced learning efficiency, adaptability, engagement, and understanding of accounting theories among accountancy students. Similarly, Mahmoud, Bala, Pada, and Maibeni (2025) found that AI significantly influenced students' digital skills, employability, job readiness, and entrepreneurial capabilities. However, the slightly lower mean and higher standard deviation in the present study suggest that some students may still have concerns about the reliability and accuracy of AI-generated accounting solutions, consistent with previous studies that acknowledge the risks and limitations of AI integration in accounting education. Zhou and Luo (2025) found that a large majority of both accounting and non-accounting students in a U.S. university used AI regularly, primarily to assist with difficult concepts and improve learning efficiency. Their findings that students perceived AI as helpful in improving knowledge acquisition, academic performance, enjoyment in learning, and time management align closely with the present study, which likewise suggests that accounting students use AI tools to support various academic and language-related learning tasks. The preference for AI in Accounting Information Systems (AIS) subjects further supports the idea that AI tools are increasingly relevant in accounting education, particularly in handling technical and analytical tasks.

The findings are also reinforced by the study by Dja'far, Agustina, and Hamidah (2025), which demonstrated that AI-based learning significantly improved students' English for Accounting (ESP) competencies compared to conventional learning methods. Their results showed notable gains in accounting vocabulary, reading financial statements, writing accounting reports, oral presentations, listening comprehension, and grammar usage, supporting the present study's focus on AI-assisted development of English proficiency and accounting subject learning. The substantial improvement observed in the experimental group suggests that AI tools can effectively enhance both language competence and discipline-specific communication skills among accounting students. Moreover, the systematic review conducted by Wale-Fadairo and Adedayo (2024) further supports the present findings by emphasizing AI's transformative potential in accounting education, particularly in improving student engagement, promoting deeper learning, and aligning educational practices with modern industry demands. Their review also noted challenges such as faculty preparedness, curriculum redesign, resistance to change, and ethical concerns, indicating that successful AI integration requires institutional support and responsible implementation.

Overall, the cited studies corroborate the present findings that artificial intelligence plays a significant role in supporting learning activities, enhancing English proficiency, and improving students' understanding of accounting subjects. However, while previous studies generally focused on AI adoption, learning efficiency, academic performance, and AI-assisted accounting education, only a limited number of studies specifically examined the combined dimensions of AI use in learning activities, English proficiency development, and accounting subject learning within a single framework. Moreover, the variables explored in the present study provide a more integrated perspective on how AI simultaneously supports language development and discipline-specific learning among accounting students, thereby contributing additional insights to the growing body of literature on AI in education.

Table 4 Relationship between Students' Extent of Artificial Intelligence Use in Learning Activities and their Perceived English Proficiency

| Learning Activities | English Proficiency |               |                 |                   |                       |                         | Total |
|---------------------|---------------------|---------------|-----------------|-------------------|-----------------------|-------------------------|-------|
|                     | Advanced (C1)       | Advanced (C2) | Elementary (A1) | Intermediate (B1) | Pre-Intermediate (A2) | Upper-Intermediate (B2) |       |
| Average             | 1                   | 4             | 1               | 6                 | 0                     | 10                      | 22    |
| High                | 15                  | 14            | 0               | 37                | 4                     | 34                      | 104   |
| Low                 | 0                   | 0             | 0               | 0                 | 0                     | 1                       | 1     |
| Very high           | 11                  | 15            | 0               | 45                | 6                     | 34                      | 111   |

|                   |                |    |    |       |                 |    |     |
|-------------------|----------------|----|----|-------|-----------------|----|-----|
| Total             | 27             | 33 | 1  | 88    | 10              | 97 | 238 |
| Chi-Squared Tests | X <sup>2</sup> |    | Df | P     | Interpretation  |    |     |
|                   | 0.263          |    | 15 | 0.280 | Not significant |    |     |

Table 4 examines the relationship between accounting students' extent of AI use in learning activities (rated as Average, High, Low, Very High) and their self-perceived English proficiency levels based on the CEFR scale, using a cross-tabulation and chi-squared test. The chi-squared test yields [ $X^2(15) = 0.263, p=0.280$ ], interpreted as not significant, meaning there is no statistically significant association between AI use extent and perceived English proficiency at conventional significance levels of 0.05. This suggests that while high AI users predominate across proficiency levels, self-rated English skills do not systematically differ by how much AI is used in learning activities.

Despite the generally positive findings regarding AI use, the present study found no significant relationship between the extent of AI use in learning activities and students' self-perceived English proficiency. This finding corroborates the study of Bancoro (2024), which likewise found no significant relationship between AI use and academic performance among Business Administration students in a Philippine state university. Both studies suggest that frequent AI use does not necessarily result in measurable improvements in students' perceived competence or academic outcomes. However, this finding contradicts several studies that reported positive educational effects of AI. For instance, Keumalasari, Iqbal, Aulia, and Pranata (2024) found that students perceived AI as enhancing motivation and developing English language skills through interactive and flexible learning opportunities. Likewise, Codien, Aldaca, Claor, and Visco (2026) reported that ChatGPT positively supported grammar, vocabulary, drafting, and revising skills. Similarly, Mentari (2025) found that students believed AI promoted personalized learning and improved the four macro language skills. In addition, Grájeda, Burgos, Córdova, and Sanjinés (2024) identified significant positive effects of AI tools on students' comprehension, creativity, and productivity. Likewise, Alkhawaja, Idris, Al-Sayyed, and Al Jaber (2025) found that AI positively influenced self-directed learning, problem-solving, critical thinking, and digital literacy. These contrasting findings imply that although students perceive AI as beneficial for language learning and academic engagement, these perceived advantages may not always correspond to statistically significant improvements in self-rated English proficiency.

Table 5 Relationship between Students' Extent of Artificial Intelligence Use for the Development of English Proficiency and their Perceived English Proficiency Level

| Development of English proficiency | English Proficiency |               |                 |                   |                       |                         | Total |
|------------------------------------|---------------------|---------------|-----------------|-------------------|-----------------------|-------------------------|-------|
|                                    | Advanced (C1)       | Advanced (C2) | Elementary (A1) | Intermediate (B1) | Pre-Intermediate (A2) | Upper-Intermediate (B2) |       |
| Average                            | 1                   | 3             | 1               | 5                 | 1                     | 8                       | 19    |
| High                               | 17                  | 14            | 0               | 47                | 5                     | 41                      | 124   |
| Low                                | 7                   | 16            | 0               | 36                | 4                     | 30                      | 93    |
| Very high                          | 2                   | 0             | 0               | 0                 | 0                     | 0                       | 2     |
| Total                              | 27                  | 33            | 1               | 88                | 10                    | 97                      | 238   |
| Chi-Squared Tests                  | X <sup>2</sup>      |               | df              | P                 | Interpretation        |                         |       |
|                                    | 0.345*              |               | 15              | 0.006             | Significant           |                         |       |

$p < 0.05^*$

The chi-squared test yielded a value of  $X^2(15) = 0.345$  with a p-value of 0.006, which is lower than the 0.05 level of significance. Therefore, the null hypothesis is rejected, indicating a statistically significant relationship between students' extent of artificial intelligence use for developing English proficiency and their perceived English proficiency level. This means that students' use of AI tools for English development is associated with how they perceive their English proficiency. The findings suggest that AI tools may contribute positively to students' language development by supporting vocabulary acquisition, grammar improvement, writing enhancement, and overall communication skills. The significant association further implies that students who engage more extensively with AI tools for language learning tend to perceive themselves as having higher levels of English proficiency.

The present finding of a significant relationship between accounting students' extent of AI use in developing English proficiency and their self-perceived English proficiency levels corroborates the study by Amin and Mahjabeen (2025) who found that students widely utilized AI tools such as Grammarly and Duolingo to improve academic writing, grammar, and vocabulary, with participants perceiving these tools as highly effective because they provide immediate feedback and increase accessibility to language learning. Similarly, Xu and Wang's (2024) meta-analysis of 40 empirical studies involving 3,290 participants across ten countries demonstrated that AI had a high positive effect on English language learning achievement. These findings support the current study's finding that students who use AI more extensively for English development tend to report higher levels of English proficiency. The significant association observed suggests that AI-assisted language learning tools may contribute meaningfully to students' perceived improvement in English communication skills, particularly through personalized support, continuous practice, and real-time corrective feedback.

Table 6 Relationship between Students' Extent of Artificial Intelligence Use in Learning Accounting Subjects and their Perceived English Proficiency

| Learning Accounting Subjects | English Proficiency |               |                 |                   |                       |                         | Total |
|------------------------------|---------------------|---------------|-----------------|-------------------|-----------------------|-------------------------|-------|
|                              | Advanced (C1)       | Advanced (C2) | Elementary (A1) | Intermediate (B1) | Pre-Intermediate (A2) | Upper-Intermediate (B2) |       |
| Average                      | 6                   | 5             | 1               | 19                | 3                     | 21                      | 55    |
| High                         | 10                  | 10            | 0               | 39                | 3                     | 31                      | 93    |
| Low                          | 2                   | 2             | 0               | 2                 | 0                     | 5                       | 11    |
| Very high                    | 9                   | 14            | 0               | 25                | 4                     | 20                      | 72    |
| Very low                     | 0                   | 2             | 0               | 3                 | 0                     | 2                       | 7     |
| Total                        | 27                  | 33            | 1               | 88                | 10                    | 79                      | 238   |
| Chi-Squared Tests            |                     | $X^2$         | df              | P                 | Interpretation        |                         |       |
|                              |                     | 0.237         | 20              | 0.825             | Not significant       |                         |       |

Table 6 explores the relationship between accounting students' extent of AI use specifically for learning accounting subjects and their self-perceived English proficiency levels on the CEFR scale, analyzed via contingency table and chi-squared test. The chi-squared test yields [ $X^2(20) = 0.237$ ,  $p=0.825$ ], interpreted as not significant ( $p>0.05$ ), indicating no statistically detectable association between AI use in accounting subjects and perceived English proficiency levels.

The present study found no significant relationship between the extent of AI use in learning accounting subjects and students' self-perceived English proficiency levels. This indicates that although accounting students

frequently use AI tools in accounting-related learning tasks, this use does not necessarily correspond to higher perceived English proficiency on the CEFR scale. This finding corroborates the study of Bancoro (2024), which likewise reported no significant relationship between AI use and academic performance among Business Administration students. Both findings suggest that extensive AI utilization may support learning processes and task completion without necessarily producing measurable differences in students' self-perceived competencies, particularly in language proficiency.

The finding is also partially supported by studies that emphasize that students primarily use AI tools for academic assistance, efficiency, and subject-specific learning rather than for direct language proficiency development. For instance, Vieriu and Petrea (2025), Karunanayaka, Weerasinghe, and Somarathna (2025), and Szumski, Dziembek, and Kuczera (2025) found that students widely used AI tools such as ChatGPT, Grammarly, QuillBot, and Gemini for various academic purposes. However, these studies mainly emphasized AI's role in improving academic productivity, access to information, and learning efficiency rather than establishing a direct relationship with English proficiency outcomes. Likewise, Fachrurrozie, Nurkhin, Santoso, Asrori, and Harsono (2025) found that accounting students commonly used ChatGPT and Canva in accounting courses, suggesting that AI use in accounting may be more focused on technical and analytical support than on language enhancement. Similarly, the findings of Ahadi and Jatmika (2025), Tandiono (2023), Szadziowska and Kujawski (2024), and Trivedi (2025) support the idea that AI tools are valuable in accounting education because they improve understanding of complex concepts, efficiency, and innovation. However, these studies also acknowledged concerns about AI reliability, accuracy, ethical use, and overreliance, which may explain why high AI usage in accounting subjects does not automatically translate into improved perceptions of English proficiency. Likewise, Jingbo and Zaini (2026) noted that issues related to academic integrity, overdependence, and data privacy continue to shape students' AI adoption practices.

On the contrary, the present finding contradicts studies that reported significant positive effects of AI on English language learning and communication skills. For example, Ocampo (2025), Khan and Ong (2025), and Karatas et al. (2024) found that AI tools significantly improved language fluency, motivation, engagement, and communication skills through personalized learning and immediate feedback. Similarly, Codien, Aldaca, Claor, and Visco (2026) reported that ChatGPT positively supported grammar, vocabulary, drafting, and revising skills, while Mentari (2025) found that AI promoted personalized learning and improved the four macro language skills. Likewise, Amin and Mahjabeen (2025) observed that students perceived AI tools such as Grammarly and Duolingo as highly effective for improving writing, grammar, and vocabulary due to their real-time feedback and accessibility. Moreover, Xu and Wang (2024) demonstrated through a meta-analysis that AI had a strong positive effect on English language learning achievement across multiple countries. These contrasting findings imply that although AI tools are highly beneficial for language learning, using AI specifically in accounting subjects may not directly affect students' perceptions of their English proficiency, as accounting-related AI use may prioritize technical problem-solving and content mastery over language development.

## CONCLUSION

This study investigated how artificial intelligence enhances accountancy students' English proficiency and learning in accounting subjects. The results support the assumption of the Technology Acceptance Model that students will extensively use AI tools when they perceive them as useful and easy to use. The high utilization of multiple AI tools across learning activities, English proficiency, and accounting learning indicates that students generally integrated AI into their academic routines. The results also support Constructivist Learning Theory and Social Constructivist Theory, particularly regarding the significant relationship between AI use and students' self-perceived English proficiency levels, indicating that purposeful interaction with AI tools may help students construct knowledge, receive scaffolding, and enhance language competence. On the contrary, this alignment is not evident in the result, where no significant relationship between students' extent of AI use in general learning activities and accounting subject learning, and their perceived English proficiency was found. This finding suggests that while students widely use AI tools, general or subject-specific AI use alone does not automatically lead to improved language proficiency. Evidently, the results imply that the educational benefits of AI depend on the purpose and manner of use, with targeted AI use for language development producing more meaningful outcomes than broad or routine academic use alone. Overall, the study supports the theoretical framework in

demonstrating that AI functions as a cognitive and technological support tool for learning. However, the findings also refine the framework by suggesting that AI effectiveness is domain-specific and depends on intentional, strategic, and pedagogically guided use.

### Implication

The findings of the study generally imply that artificial intelligence has become an important supplementary learning tool among accountancy students, particularly in supporting English language development and academic learning. The widespread use of multiple AI tools suggests that students increasingly rely on AI-driven technologies to enhance writing, comprehension, communication, and subject-related learning tasks. This indicates that AI integration in higher education is no longer limited to general academic assistance but has become embedded in students' everyday learning practices. The findings further imply that accountancy students possess functional to independent English proficiency at the B1–B2 CEFR level, enabling them to engage with moderately complex academic and professional communication tasks. However, the significant relationship between AI use for English proficiency development and students' perceived English proficiency suggests that AI tools are most effective when used intentionally for language learning purposes rather than for general academic activities alone. This suggests that targeted, purposeful AI use may contribute more meaningfully to students' language development, confidence, and communication competence. Moreover, the absence of a significant relationship between AI use in accounting subjects and perceived English proficiency implies that simply using AI frequently does not automatically guarantee improved language competence or academic outcomes. Instead, the educational value of AI appears to depend on how students use these tools and the specific learning objectives they aim to achieve. This suggests that educators and institutions should guide students toward strategic use of AI technologies.

### RECOMMENDATION

The following practical recommendations are put forth:

1. Accounting students may be guided toward intentional use of artificial intelligence by designing targeted activities, such as AI-supported writing exercises focused on English proficiency rather than generic accounting tasks.
2. Artificial intelligence tools may be integrated into accounting curricula with clear objectives that connect them to the Common European Framework of Reference (CEFR) skills.
3. Training workshops on strategic applications of artificial intelligence may be provided to maximize language competence.
4. Artificial intelligence literacy that emphasizes purposeful use and monitors outcomes through assessments of both English development and accounting performance may be embedded in program policies.
5. Guidelines distinguishing supplementary artificial intelligence roles from core subject learning may be developed to avoid over-reliance without skill gains.
6. Artificial tools may be combined with traditional methods for balanced growth in communication and subject mastery.

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