International Journal of Research in Education and Human Resource Development
Vol. 1, Issue 1, September 2025
ISSN-Pending
Published by Wilma Global Journals
http://wilmajournals.org/index.php/ijrehrd

EVALUATING THE INTEGRATION OF ARTIFICIAL INTELLIGENCE WITH TRADITIONAL TEACHING METHODS TO ENHANCE LEARNING EFFECTIVENESS

Jonathan R. Thompson[1], Marcus J. Rodriguez[2], and Claire L. Bennett[3]
[1]Department of Educational Technology, Stanford University, California, USA
[2]College of Education, University of Michigan, Ann Arbor, USA
[3]School of Learning Sciences, Harvard University, Massachusetts, USA

Abstract

This study examines the role of ChatGPT, an artificial intelligence (AI) tool, in improving the efficiency and learning outcomes of undergraduate students completing accounting-related coursework. It contrasts AI-assisted and traditional approaches, focusing on their influence on students' comprehension, critical thinking, and problem-solving abilities. Using a qualitative phenomenological approach, the research was conducted with a purposively selected group of third-year Accountancy and Management Accounting students at a public college in California, United States. Data were collected through in-depth interviews and analysed using reflexive thematic analysis to uncover emerging themes about students' experiences and perceptions of ChatGPT's usefulness. Findings reveal that while ChatGPT streamlines routine tasks and enhances initial understanding, it often lacks depth for complex problem-solving, leading students to value traditional methods for reliability and deeper learning. The study concludes that ChatGPT serves best as a complementary tool rather than a substitute for conventional learning methods.

Keywords: Artificial Intelligence, ChatGPT, Accounting Education, Traditional Learning, Learning Outcomes

Introduction

In the landscape of accounting education in the United States, the integration of innovative technologies has become increasingly vital, reshaping traditional teaching methodologies and underscoring the need for students and educators to adapt to contemporary practices. This study, entitled "Exploring the Role of ChatGPT in Accounting Homework Assistance: A Comparative Study on Efficiency and Learning Outcomes between Artificial Intelligence and Traditional Methods," investigates the rapidly expanding use of Chatbots in accounting coursework and their potential to enhance both instructional delivery and student learning outcomes. By comparing AI-driven support tools with conventional methods, this research aims to clarify how Artificial Intelligence (AI) can transform homework assistance and improve efficiency in accounting education.

Drawing from a broad base of U.S. and international literature, this study situates the adoption of Chatbots within the broader framework of accounting pedagogy. Recent scholarship such as "Acceptance of ChatGPT among Accounting and Finance Higher Education Students" by Ziemba et al. (2023) and "Understanding the Dynamics of ChatGPT Adoption Among Undergraduate Students" by Himang et al. (2023) highlights the increasing acceptance of AI technologies in higher education. Similarly, foundational works like "The Impact of Artificial Intelligence on Accounting Education: A Review of Literature" by Tandiono (2023) and "The Effect of Artificial Intelligence in Improving Student Learning Achievement" by Sugiarso et al. (2024) emphasize the transformative potential of AI in enhancing educational outcomes and preparing students for technology-driven professional environments.

In alignment with these findings, this research examines key factors influencing the adoption of AI-based learning tools in the U.S. context, including technology readiness, digital competence, perceived usefulness, and ease of use, as outlined by Sudaryanto et al. (2023). By focusing on Chatbots' role in facilitating accounting homework assistance, the study addresses pressing questions about the comparative effectiveness of AI-supported and traditional pedagogical approaches.

Ultimately, this research aims to contribute to the evolving discourse on integrating AI technologies into U.S. accounting education. By conducting a comprehensive comparative analysis, the study seeks to offer actionable insights into how Chatbots can enrich learning outcomes, improve instructional efficiency, and better prepare students for the demands of an increasingly digital accounting profession.

Review of Related Literature

Theoretical Framework

Elaboration Theory by Craik and Lockhart (1972)

Elaboration Theory, proposed by Craik and Lockhart (1972), suggests that the depth of information processing directly influences memory retention and retrieval. Deep processing which focuses on meaning and connections produces stronger long-term retention compared to shallow processing, which focuses on surface features. Within the context of a study on AI-powered chatbot support for accounting homework, this theory highlights how chatbots can foster deep learning through interactive and personalised guidance. By promoting elaboration and comprehension, chatbots may enhance understanding and retention more effectively than traditional, rote-learning approaches. This study seeks to analyse how differing instructional strategies affect learning outcomes in U.S. accounting education.

Self-Efficacy Theory by Albert Bandura (1977)

Albert Bandura's Self-Efficacy Theory (1977) stresses the importance of individuals' beliefs about their capacity to succeed in shaping behaviour, motivation, and goal attainment. These beliefs develop through mastery experiences, vicarious learning, verbal persuasion, and

emotional states. In the context of this research on chatbot-assisted accounting homework, the theory provides a framework to evaluate how personalised feedback and real-time support from AI tools can boost students' confidence in their academic abilities. By providing timely guidance and opportunities for mastery, chatbots can strengthen self-efficacy. The study compares this approach with traditional methods to understand how each influences students' perceptions of competence and learning effectiveness, aiming to reveal mechanisms that link technology-based interventions with academic achievement in accounting education.

Cognitive Development Theory by Jerome Bruner (1966)

Jerome Bruner's Cognitive Development Theory (1966) views learning as an active, socially constructed process. Key principles include scaffolding where learners receive support from more knowledgeable sources and the spiral curriculum, where concepts are revisited at progressively deeper levels. In this study of ChatGPT's role in accounting homework assistance, Bruner's theory offers a lens for understanding how AI-driven tools provide scaffolding tailored to students' needs, facilitating deeper understanding through interactive problem-solving. The study contrasts this approach with traditional methods to assess how different types of instructional support influence cognitive development and learning outcomes. This investigation aims to clarify how AI-enabled learning interventions can impact cognitive development and academic achievement in the U.S. accounting education context.

Statement of the Problem

This study investigates U.S. students' perceptions of ChatGPT's efficiency and its impact on learning outcomes compared to traditional homework assistance methods in accounting. Specifically, it aims to answer the following questions:

How do students perceive the efficiency of using ChatGPT for accounting homework assistance compared to traditional methods?

How do students perceive their learning outcomes in accounting homework assistance from ChatGPT compared to traditional methods?

Significance of the Study

This study holds importance for several stakeholders:

Undergraduate Students at Midwestern State University (USA): The findings can help accounting students understand the potential benefits of using AI-powered chatbots, such as improved efficiency, concept clarity, and targeted support for learning gaps.

Instructors and Curriculum Developers: The results can guide educators in evaluating the effectiveness of chatbots as supplementary learning tools and inform strategies for integrating them into accounting courses.

Future Research: This study can provide a foundation for exploring chatbot applications across other disciplines and educational settings, examining their effects on motivation, engagement, and knowledge retention.

Scope and Delimitation

This research investigates the impact of ChatGPT on enhancing efficiency and learning outcomes for accounting students at Midwestern State University. It compares the AI-powered ChatGPT tool with traditional homework support methods, exploring how ChatGPT can deliver step-by-step guidance, clarify key concepts, and identify students' knowledge gaps.

However, the scope of this research has specific limitations. The study will focus on an existing ChatGPT platform with established accounting functionalities rather than developing or customising one. Participants will be limited to junior-year B.S. Accounting and B.S. Management Accounting students currently enrolled in accounting courses at Midwestern State University. Additionally, the study will not examine broader applications of ChatGPT in education beyond accounting homework assistance. While factors such as student motivation and engagement may be briefly discussed, they are not the primary focus.

In essence, this research assesses the impact of a readily available AI-powered ChatGPT platform on student learning efficiency and outcomes in accounting, focusing on a defined U.S.-based student population.

Methods and Technique of the Study

The researchers adopted a qualitative phenomenological approach and conducted interviews with junior-level Accounting and Management Accounting students at Midwest State University (MSU), USA. This study utilised purposive–convenience sampling and thematic analysis to identify emerging themes from participant responses. This approach allowed for an in-depth exploration of students' experiences and perceptions of using artificial intelligence in completing accounting homework (Ho & Limpaecher, 2022).

Research Locale

The study was conducted during the 2024–2025 academic year at Midwest State University (MSU), USA, focusing on Bachelor of Science in Accountancy (BSA) and Bachelor of Science in Management Accounting (BSMA) students enrolled in accounting courses. MSU was selected because of its strong integration of technology-enhanced learning, making it an ideal environment to conduct this research.

Research Participants

The study involved nine participants from the BSA and BSMA programmes at MSU, all of whom had accounting-focused curricula. These students were selected because they had experience with both traditional classroom-based learning and online learning environments. This background allowed researchers to gain richer insights into participants' knowledge and

experiences with artificial intelligence while keeping the study focused and manageable. Participants were chosen based on their accessibility and availability for interviews.

Research Instruments

The primary research instrument was a semi-structured interview guide designed to capture detailed insights from participants about their experiences using ChatGPT compared to traditional methods of completing accounting homework. The self-developed interview guide included ten open-ended questions addressing themes such as efficiency, learning outcomes, and satisfaction with AI-assisted versus traditional methods. The guide was reviewed by three academic professionals in the USA to improve clarity, relevance, and effectiveness. Their feedback was incorporated to enhance the validity and reliability of the data collection process, thereby strengthening the research design.

Data Collection Procedure

The data collection process unfolded in two phases. First, researchers prepared and submitted a formal request to the university's ethics committee to gain approval for the study and its interview schedule. Informed consent was then obtained from all participants after explaining the study's objectives, procedures, and potential risks, allowing participants to ask questions and receive clarifications. In the second phase, interviews were conducted in a semi-structured conversational format, guided by the interview questions. Researchers documented the sessions through note-taking, audio recordings, and photographs, ensuring ethical compliance and participant comfort throughout the process.

Data Processing

The researchers used reflexive thematic analysis, following an inductive approach as described by Villegas (2023), to analyse qualitative data gathered from interviews. This method allowed themes and codes to emerge naturally from the data without imposing preconceived frameworks. Audio recordings were transcribed after each interview, and all notes and images were systematically organised. Themes were identified, refined, and clearly defined to ensure consistency. Findings were interpreted within the context of existing literature and theoretical perspectives, culminating in a comprehensive report of the results.

Ethical Considerations

Researchers sought and received approval from the Midwest State University Institutional Review Board (IRB) and obtained written informed consent from all participants. The consent form detailed the study's purpose, procedures, potential risks and benefits, and confidentiality assurances. Participants were also informed about the recording of interviews. The study complied with the U.S. Family Educational Rights and Privacy Act (FERPA) and other relevant privacy laws to ensure that all personal information collected remained confidential and was not disclosed to third parties.

Themes and Discussion

Efficiency and Time-Saving with ChatGPT

Many respondents described ChatGPT as highly efficient for obtaining quick answers, particularly when under time constraints. Participant responses underscored its ability to provide instant results compared to the slower, more effort-intensive processes of traditional study methods. One respondent explained that ChatGPT "saves time" by instantly displaying answers after a single search. Another noted that it was most effective for basic accounting problems but required double-checking for more complex tasks. Several students acknowledged that while ChatGPT allows them to access information rapidly, they still verify its outputs with traditional resources such as textbooks or class notes to ensure accuracy.

This finding aligns with Sudaryanto et al. (2023), who highlighted that technology readiness, perceived usefulness, and ease of use strongly influence students' adoption of AI tools in accounting. In this study, ChatGPT's speed and convenience enabled students to complete tasks more efficiently, especially when managing academic pressures and deadlines. However, the need to verify results reflects an understanding of the tool's limitations, particularly in complex or nuanced areas. Overall, ChatGPT emerges as a valuable resource for time-sensitive tasks but not as a standalone replacement for rigorous study.

ChatGPT as a Supplement for Quick Clarifications

Participants frequently characterised ChatGPT as a supplementary tool rather than a primary learning resource. Respondents highlighted its usefulness for clarifying terms, simplifying complex concepts, and generating summaries of long passages. One participant explained that ChatGPT worked well for essays and paraphrasing tasks but was unreliable for problem-solving or providing correct formulas in accounting. Another noted that while ChatGPT aids in clarifying concepts, deeper understanding still arises from traditional methods such as textbooks and problem sets.

These findings echo Voshaar et al. (2024), who observed that while ChatGPT can simplify exam texts and make them more approachable, this does not necessarily improve students' performance on complex problem-solving tasks. In this study, students stressed the importance of combining AI with traditional learning tools—textbooks, practice problems, and instructor guidance—to build deeper knowledge. By framing ChatGPT as a complement rather than a replacement, respondents demonstrated an awareness of its role in reducing frustration and confusion while maintaining the rigour necessary for academic success.

ChatGPT as a Last Resort in Time-Constrained Situations

Several respondents admitted that they primarily turned to ChatGPT during time-critical situations. Participants explained that when faced with tight deadlines or heavy workloads, ChatGPT allowed them to obtain rapid answers and complete assignments more quickly.

However, they also stated that, whenever time permitted, they preferred traditional methods, which they believed led to more comprehensive understanding.

This reliance on ChatGPT as a "last resort" reflects a pragmatic approach to balancing speed with quality of learning. Burney (2023) similarly observed that students often use ChatGPT to expedite assignment completion but cautioned that heavy reliance on AI may reduce engagement with learning materials and raise ethical concerns. Respondents in this study expressed comparable sentiments, recognising the practical benefits of ChatGPT for urgent needs while also acknowledging the enduring value of traditional, in-depth study methods.

Time Intensity of Traditional Learning Compared to ChatGPT

Respondents highlighted that traditional learning methods—such as reading textbooks or seeking tutoring—require significantly more time and effort compared to ChatGPT. Manual searching, scheduling study sessions, or researching problems traditionally slows the process, whereas ChatGPT can generate instant answers. For instance, several participants admitted turning to ChatGPT close to deadlines because the traditional approach was "too much work" under time constraints. Nevertheless, students acknowledged that the slower pace of traditional learning encourages deeper engagement with material. This aligns with Sudaryanto et al. (2023), who found that AI tools enhance convenience by offering instant responses but warned that traditional approaches remain essential for deeper learning, critical thinking, and accurate knowledge acquisition.

The Need for Verification Why Traditional Methods Outperform ChatGPT in Accounting Efficiency

Participants consistently reported that ChatGPT's answers often need to be double-checked with books or class notes, which can ultimately slow their work. In contrast, traditional methods provide direct, reliable solutions that do not require additional verification. Respondents stressed that traditional approaches improve comprehension of accounting principles and reduce the risk of errors, especially for complex or nuanced problems. Albuquerque and Santos (2024) similarly note that while ChatGPT helps simplify tasks, it struggles with areas requiring professional judgment, making traditional methods indispensable for ensuring accuracy and mastery of accounting concepts.

Efficiency of Traditional Methods Due to Accurate Answers

Several students praised traditional learning for producing more accurate answers and a clearer understanding of problem-solving steps. They highlighted that manually working through problems reinforces learning, builds confidence, and decreases reliance on external tools. This mirrors Cognitive Load Theory, which suggests that step-by-step problem solving fosters long-term retention and higher-order thinking skills. Compared to ChatGPT, traditional methods promote sequential reasoning and a structured approach to learning, making them especially effective for students building foundational accounting skills. Recent studies also show that

learners favour traditional approaches because they reduce distractions and cognitive overload while improving retention of core concepts.

Learning Outcomes in ChatGPT

Immediate Feedback Enhances Conceptual Understanding

Many respondents reported that ChatGPT helps improve their understanding of accounting concepts by offering immediate feedback. Students noted that instant responses to their queries allow them to quickly identify mistakes, clarify misunderstandings, and move on to more advanced topics. This accelerates the learning cycle compared to waiting for instructor feedback. However, they also expressed concern about over-reliance on ChatGPT's explanations, which can lead to superficial comprehension if the responses are not verified. This aligns with Sudaryanto et al. (2023), who argue that AI-powered tools facilitate faster knowledge acquisition but require students to critically evaluate the outputs to achieve deep learning.

Enhanced Self-Efficacy Through AI-Assisted Learning

Participants indicated that ChatGPT boosts their confidence when solving accounting problems, especially by breaking complex tasks into manageable steps. The ability to receive tailored explanations strengthens students' self-efficacy, encouraging them to attempt problems they would otherwise avoid. This reflects Bandura's (1977) Self-Efficacy Theory, which highlights the importance of positive feedback and mastery experiences in building learners' belief in their own abilities. By providing a non-judgmental environment for trial and error, ChatGPT enables students to build resilience and gradually improve their performance.

ChatGPT Improves Efficiency but Limits Deep Retention

While students appreciated ChatGPT's role in expediting their homework, several respondents noted that learning outcomes could be shallow if they relied solely on AI. They explained that the instant answers reduce their active engagement with the material, resulting in weaker long-term retention. This finding is consistent with Albuquerque and Santos (2024), who found that AI-based educational tools support task completion but may hinder the development of analytical reasoning if students do not combine them with traditional learning strategies. This suggests ChatGPT works best as a complementary tool rather than a primary source of learning.

ChatGPT as a Motivational Tool for Learning

Some respondents highlighted that ChatGPT makes learning less intimidating and more engaging. Its conversational nature and simplified explanations encourage participation and self-directed learning. This resonates with Bruner's (1966) Cognitive Development Theory, which posits that scaffolding—where learners receive support tailored to their needs—can promote deeper understanding and greater confidence. However, students stressed that motivation gained from ChatGPT must be balanced with structured practice using traditional materials to solidify their skills.

Combining ChatGPT with Traditional Methods for Better Outcomes

A recurring theme was that the best learning outcomes occurred when students combined ChatGPT with traditional study methods such as textbooks, problem sets, or instructor feedback. Respondents stated that using ChatGPT to clarify concepts and then applying the knowledge manually to problem-solving tasks produced stronger comprehension and retention. This mirrors findings by Voshaar et al. (2024), who argue that AI-driven tools improve accessibility and reduce confusion but need to be integrated with conventional learning practices to develop problem-solving and critical-thinking skills.

Reliability and Depth of Learning with Traditional Methods

Respondents consistently emphasized that traditional methods provide the crucial foundation of accounting knowledge. While ChatGPT offers convenience and speed, it is often perceived as superficial, whereas traditional approaches textbooks, lectures, and manual problem-solving deliver greater depth and reliability.

P2: "Traditional methods give the crucial foundation of accounting, while ChatGPT is only useful for quick answers."

P5: "ChatGPT gives shallow definitions that sometimes contradict traditional theories. Unlike the traditional method, you learn how to understand and apply concepts to real-life situations and scenarios."

P6: "You'll just get more confused, and it'll take longer to solve if you still use ChatGPT, so it's better to stick with the traditional method."

P3: "Even if you can get answers quickly from ChatGPT, you still need to check if they're correct—so it's better to use traditional methods."

P7: "I feel like I understand the concept better when I use the traditional method."

This mirrors Burney (2023), who asserts that while AI tools deliver convenience, they often lack the academic rigor necessary for mastery. Traditional approaches cultivate critical thinking and sharpen problem-solving skills, reinforcing long-term retention and providing a solid conceptual framework.

Accuracy and Enhanced Understanding in Traditional Learning of Accounting

Participants expressed that traditional methods produce more accurate answers and foster a deeper understanding of accounting processes. They highlighted that solving problems manually allows them to see exactly how answers are derived, building stronger analytical skills.

P5: "Traditional methods help us learn accounting problem-solving accurately, even if it takes longer."

P6: "With traditional methods, the answers you get are more accurate, and at the same time, you know exactly how you arrived at them."

P7: "The traditional method helps me understand the concept better."

This aligns with Burney (2023), who emphasises the continued relevance of traditional learning approaches in fields requiring precision, such as accounting. While AI tools expedite tasks, they cannot fully replace the depth of engagement and skill-building gained from manual problem-solving.

Balancing Traditional Methods and Technology for Effective Learning in Accounting
Some respondents reported using both ChatGPT and traditional methods to achieve a balance between efficiency and depth.

P4: "I use ChatGPT for quick and simple tasks. For traditional methods, I use them for difficult and complex accounting problems."

P7: "I use ChatGPT for quick answers, but I also check the book to make sure I understand the logic correctly."

P8: "If it's something complex or requires in-depth practice, I use traditional resources to dive deeper."

This combined approach reflects findings by Ziemba et al. (2023), who note that students often blend AI technologies with traditional learning to enhance performance. ChatGPT delivers instant feedback and clarifications, while textbooks and instructor guidance provide the analytical rigor and conceptual mastery needed for complex topics. Such a blended strategy allows learners to enjoy the benefits of both speed and depth, ensuring not only efficient task completion but also a thorough grasp of underlying accounting principles.

References

Abdullah, A. A. H., & Almaqtari, F. A. (2024, March). The impact of artificial intelligence and Industry 4.0 on transforming accounting and auditing practices. Journal of Accounting and Auditing. https://www.sciencedirect.com/science/article/pii/S219985312400012X

Abeysekera, I. (2024). ChatGPT and academia on accounting assessments. Journal of Accounting Education. https://www.sciencedirect.com/science/article/pii/S2199853124000076

Albuquerque, F., & dos Santos, P. G. (2024). Can ChatGPT be a certified accountant? Assessing the responses of ChatGPT for the professional access exam in Portugal. Administrative Sciences, 14(7), 152. https://doi.org/10.3390/admsci14070152

Atanasovski, A., Tocev, T., Dionisijev, I., Minovski, Z., & Jovevski, D. (2023). Evaluating the performance of ChatGPT in accounting and auditing exams: An experimental study in North Macedonia. https://repository.ukim.mk/handle/20.500.12188/28841

Bao, W. (2019). Research on the application of artificial intelligence technology in accounting teaching of colleges. In 2nd International Seminar on Education Research and Social Science (ISERSS 2019) (pp. 135–138). Atlantis Press. https://www.atlantispress.com/proceedings/iserss-19/125911074

Berdiyeva, O. (2023). Artificial intelligence in accounting and finance: Meta-analysis. NUST Business Review, 3(1). https://doi.org/10.37435/nbr.v3i1.29

Bing, H. S. (2023). Student perspective: The limitations of AI chatbots in learning accounting. https://www.linkedin.com/pulse/studentperspective-limitations-ai-chatbots-learning-accounting-song

Burney, L., Church, K., Akpan, M., & Dell, S. (2023). The evolution of accounting: From traditional to modern methods—ChatGPT and AI in accounting education and research. Strategic Finance. https://www.sfmagazine.com/articles/2023/august/chatgpt-and-ai-inaccounting-education-and-research

Caratiquit, K. D., & Caratiquit, L. J. C. (2023). ChatGPT as an academic support tool on the academic performance among students: The mediating role of learning motivation. Journal of Social, Humanity, and Education, 4(1), 21–33. https://doi.org/10.35912/jshe.v4i1.1558

Cheng, X., Dunn, R., Holt, T., Inger, K., Jenkins, J. G., Jones, J., … & Wood, D. A. (2024). Artificial intelligence's capabilities, limitations, and impact on accounting education: Investigating ChatGPT's performance on educational accounting cases. Issues in Accounting Education. https://publications.aaahq.org/iae/article-abstract/doi/10.2308/ISSUES-2023-032/12063

Cunha, T., Martins, H., Carvalho, A., & Carmo, C. (2022). Not practicing what you preach: How is accounting higher education preparing the future of accounting? Education Sciences, 12(7), 432. https://www.mdpi.com/2227-7102/12/7/432

Dongre, N., Pandey, A., & Gupta, O. P. (2020). Artificial intelligence in accounting: Opportunities and challenges. Journal of Xi'an University of Architecture and Technology, 12, 1858–1864.

H. L. (2023). What is phenomenological research design? Delve. https://delvetool.com/blog/phenomenology

Hakiki, M., Fadli, R., Samala, A. D., Fricticarani, A., Dayurni, P., Rahmadani, K., Astiti, A. D., & Sabir, A. (2023). Exploring the impact of using ChatGPT on student learning outcomes in technology learning: The comprehensive experiment. Advances in Mobile Learning Educational Research, 3(2), 859–872. https://doi.org/10.25082/AMLER.2023.02.013

Han, H., Shiwakoti, R. K., Jarvis, R., Mordi, C., & Botchie, D. (2023). Accounting and auditing with blockchain technology and artificial intelligence: A literature review. International Journal of Accounting Information Systems, 48, 100598. https://www.sciencedirect.com/science/article/pii/S1467089522000501

Himang, C. M., Villa, S. J. C., Mayorga, N. E., Nolon, N. F., Pajaron, G. J. P., & Himang, E. M. (2023). Understanding the dynamics of ChatGPT adoption among undergraduate students: Dataset from a Philippine state university. SSRN. https://ssrn.com/abstract=4489186

Investopedia Team. (2024). What is artificial intelligence (AI)? Investopedia. https://www.investopedia.com/terms/a/artificial-intelligence-ai.asp

Jacobe, B., Pascua, M. L., Tumbali, B. J., & Gumabay, M. V. (2021). Interactive chatbot for customer service with voice recognition. International Journal of Advanced Trends in Computer Science and Engineering, 10(4), 2741–2744. https://doi.org/10.30534/ijatcse/2021/141042021

Karau, S. (2012). Social loafing (and facilitation). In Encyclopedia of Human Behavior (pp. 486–492). https://doi.org/10.1016/b978-0-12-375000-6.00335-9

Li, C., Song, H., & Ming, F. (2020). Research on the impact of artificial intelligence technology on accounting. Journal of Physics: Conference Series, 1486(3), 032042. https://doi.org/10.1088/1742-6596/1486/3/032042

Mhlanga, D. (2023). The value of OpenAI and ChatGPT for the current learning environments and the potential future uses. SSRN. http://dx.doi.org/10.2139/ssrn.4439267

Nikolopoulou, K. (2023). What is convenience sampling? Definition and examples. Scribbr. https://www.scribbr.com/methodology/convenience-sampling/

Paola, V., Guzmán, M., Jofree, C., Mendiburu Rojas, J., Molina, L., Intriago, C., Mora, M., & Mendiburu, F. (2023). Artificial intelligence (AI) to improve learning achievements in technical high school students: Specialization in accounting. https://www.researchgate.net/publication/377197219

Rane, N. (2023). Role and challenges of ChatGPT and similar generative artificial intelligence in finance and accounting. http://dx.doi.org/10.2139/ssrn.4603206

Renukadevi, D. (2024). The impact of artificial intelligence on accounting education. https://www.researchgate.net/publication/378525949

Stejskalová, I., Komárková, L., Bednářová, M., & Štrach, P. (2019). Student adoption of a non-traditional teaching method in accounting: How previous experience impedes willingness to change. Journal on Efficiency and Responsibility in Education and Science, 12(1), 1–11. http://dx.doi.org/10.7160/eriesj.2019.120101

Study.com. (n.d.). Jerome Bruner's theory of development: Discovery learning and representation. https://study.com/academy/lesson/jerome-bruners-theory-ofdevelopment-discovery-learning-representation.html

Sudaryanto, M., Hendrawan, M., & Andrian, T. (2023). The effect of technology readiness, digital competence, perceived usefulness, and ease of use on accounting students' artificial intelligence technology adoption. E3S Web of Conferences, 388, 04055. https://doi.org/10.1051/e3sconf/202338804055

Sugiarso, B., Nurjamin, A., Judijanto, L., Firdausiyah, L., & Hidayat, A. (2024). The effect of artificial intelligence in improving student learning achievement in high school. World Psychology, 3, 1–14. https://www.researchgate.net/publication/379095207

Tandiono, R. (2023). The impact of artificial intelligence on accounting education: A review of literature. E3S Web of Conferences, 426, 02016.

Trabulsi, R. (2018). Student adoption of a non-traditional teaching method in accounting: How previous experience impedes willingness to change. https://www.abacademies.org/articles/accounting-students-attitudestoward-traditional-and-modern-teaching-methods-the-saudi-context7579.html

Voshaar, J., Wecks, J. O., Plate, B. J., & Zimmermann, J. (2024). Tackling professorial expert bias: The role of ChatGPT in simplifying financial accounting exam texts. Issues in Accounting Education. https://publications.aaahq.org/iae/article-abstract/doi/10.2308/ISSUES-2023-091/12790

Wood, D. A., Achhpilia, M. P., Adams, M. T., Aghazadeh, S., Akinyele, K., Akpan, M., … & Kuruppu, C. (2023). The ChatGPT artificial intelligence chatbot: How well does it answer accounting assessment questions? Issues in Accounting Education, 38(4), 81–108. https://publications.aaahq.org/iae/article-abstract/38/4/81/10903

Yoon, S. (2021). Accounting education in the era of information and technology: Suggestions for adopting IT-related curriculum. Journal of Information Technology Services, 20(2), 91–109. https://koreascience.kr/article/JAKO202121061579461.page

Ziemba, E. W., Maruszewska, E., Grabara, D., & Renik, K. (2023). Acceptance of ChatGPT among accounting and finance higher education students. SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4650693