ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

Perceived Impacts of Academic AI Use in Teaching and Learning

Jennifer D. Regala*[1, 2], Dennis G. Caballes[2]
[1] Institute of General Education, College of Education, Arts and Sciences, National University, Manila, Philippines
[2] Graduate School, Centro Escolar University Manila, Philippines
Corresponding Author e-mail: *jdregala@national-u.edu.ph*

Received: 25 April 2025 **Revised**: 27 May 2025 **Accepted**: 29 May 2025

Available Online: 02 June 2025

Volume IV (2025), Issue 2, P-ISSN – 2984-7567; E-ISSN - 2945-3577

https://doi.org/10.63498/etcor343

Abstract
Aim: The purpose of the paper is to shed light on people's perception of artificial intelligence (AI) in higher education by studying its impact on both teachers and students. It examines the impact of AI on student-teacher interactions, lesson delivery methods, and learning effectiveness.
Methodology: This study utilized a quantitative approach and online survey to 110 undergraduate respondents from a private non-sectarian university in Manila. Data were examined by regression analyses to determine the connections between students' attitudes toward AI and how they attribute educational impacts of AI.
Results: The results showed a positive correlation of statistical significance between students' attitudes towards future integration of AI in education, on one hand, and perceptions of the influence of AI on exams, methods of teaching, and the effectiveness of learning, on the other hand. This suggests that students who are positive toward AI see that AI is beneficial in an educational setting.
Conclusion: The results highlight the significance of fostering positive attitudes toward AI to promote successful adoption in HEIs. Recommendations include increasing AI literacy for students, providing AI-specific guidance, and training teachers to include AI in their teaching. These steps can maximise the benefits provided by AI in improving teaching and learning.
Keywords: AI, teaching, learning, Higher Education, Student Perceptions, Impact, AI Perceptions

INTRODUCTION

The technological usage of Artificial Intelligence (AI) in education has shifted from being merely an advantage to becoming the norm. Russell and Norvig (2021) argue that AI refers to the development of computer systems capable of performing tasks that require intellectual faculties such as learning, problem-solving, and decision-making. AI is being utilized in the education sector to optimize instructional efficiency, personalize learning, and improve teaching quality. This study investigates how AI is perceived within the education sector, analyzing its impact on both teachers and learners, as well as how it alters student-teacher interactions and lesson outcomes.

Educational institutions worldwide are increasingly using various AI technologies to personalize education, automate mundane tasks, and implement intelligent tutoring systems (Chen et al., 2020). For instance, AI-powered platforms can analyze data and provide tailored educational material that accounts for each student's learning pace, strengths, and challenges. Additional applications include AI in grading, class management, and teaching virtual assistants, which enable teachers to focus on more complex aspects of education.

Nevertheless, the rapid integration of AI across sectors raises concerns regarding ethics, data privacy, and educational equity. Addressing these issues adds significant dimensions to the strategies and achievements associated with AI in education, presenting important areas for exploration. Although there has been general concern regarding adopting AI technologies in education, research on their substantive pedagogical effects on educators and

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

learners remains limited, particularly concerning discriminatory and over-reliant use of AI technologies (Zawacki-Richter et al., 2019).

This study poses four central questions:

1. How has AI affected educators and their instructional practices?
2. Which activities do students believe AI improves in their learning experiences?
3. Which activities do students believe AI diminishes in their learning experiences?
4. What privacy, equity, and ethics issues relate to AI in educational contexts?

Answering these questions will address crucial research gaps concerning AI practices in education and the associated risks of privacy insecurity and excessive dependence on AI systems. This research discusses the Technological Pedagogical Content Knowledge (TPACK) framework developed by Mishra and Koehler (2006), integrating technical, pedagogical, and content knowledge to enhance effective teaching practices. By using TPACK as the theoretical foundation, this study aims to develop models for increasing the practical integration of AI technologies within education.

The TPACK Framework has emerged as a vital focus in recent works related to AI in education, emphasizing the intricate relationship between technology, pedagogy, and content. For example, Sahin and Topal (2022) utilized TPACK constructs to examine teachers' experiences with AI-based tools, reporting that a TPACK framework improves educators' pedagogical integration of AI technology. Similarly, Hamzah et al. (2023) evaluated the educational effectiveness of intelligent tutoring systems using TPACK to illustrate how to bridge technology and content gaps for more effective AI implementation.

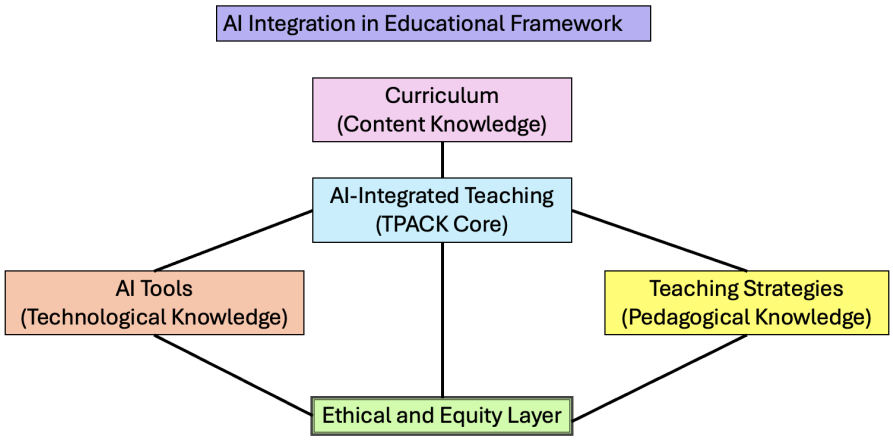

Figure 1. Theoretical Framework

Figure 1 provides a simplistic process for embedding AI in education, highlighting the relationship between AI technologies and the four central constructs in education: technology integration, pedagogy, content, and ethics. This model casts AI as a catalyst support, through recognizing the fast advancement of AI for education. According to the TPACK model, "Technology" consists of AI tools, such as intelligent tutoring systems and adaptive learning platforms, which support and augment teaching productivity while meeting the diverse needs of students. Teachers also need to have adequate technology proficiency to be able to use these tools effectively, as observed in Chen et al. (2020) highlighting the need to educate teachers in order to harness AI for student learning management. The pedagogy component focuses on embedding AI technology in the pedagogical approach. Also, AI feedback allows teachers to adapt to the learning needs of students. New discoveries further underscore the importance of pedagogical knowledge in effective use of AI. For instance, TPACK was employed by Sahin and Topal (2022) to

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

investigate the perceptions of teachers toward a computer application, teaching with moral courage. They demonstrated that teachers' understanding of pedagogical concepts influences the embeddedness of AI in teaching with low staff time. The "Content" dimension refers to the set of programs/curriculum, and the knowledge about the specific content required to obtain educational goals with AI tools. A review by Zawacki-Richter et al. (2019) found that AI in education must concentrate on certain subjects to enhance learning efficiently. This focus on subject area knowledge can help practitioners to choose the AI tools that support learning and do not compromise the curriculum.

AI-Embedded Teaching—TPACK Core—most closely mirrors the intersection between technology, pedagogy, and content knowledge and promotes student engagement in an integrated teaching model. Hamzah et al. (2023) observed that such an intersection of these substances portrayed in the TPACK framework positions AI in education as a possible channel for responding to the social issues in society in a mutually beneficial and positive involvement. The model also integrates an Ethical and Equity Layer which considers privacy and equitable access. These AI capabilities underscore the importance of guarding sensitive information and adhering to legal obligations that help guarantee AI tools are available to all students in an equitable manner.

In the changing face of education, it has become a necessity to cater for the digitally oriented society, with students now demanding that their learning experiences be supported by cutting-edge digital technology. Teachers are experiencing increased pressure to integrate technologies to effectively reach and attend to a variety of learners (Zawacki-Richter et al., 2019). The results of this study contribute to the literature about the incorporation of AI in education and offer useful suggestions for teachers and school administrators regarding the ethical use of AI.

AI's Impact On Personalizing Learning

Personalized Learning Experience

One of the greatest contributions of AI in the field of education is that it permits for personalized learning. Adaptive learning solutions based on AI match content to individual students' learning preferences to deepen engagement and comprehension. This move toward customization is a reflection of a larger educational paradigm shift that positions learners at the core of learning. But concerns related to privacy, ethics, and possible inequities need to be addressed, particularly in environments like the Philippines, which face issues of digital equity (Zawacki-Richter et al., 2019).

AI in the Philippine Setting AI for education is growing in the Philippines, especially in adaptive learning technologies. However, policymakers and academics are considering ways in which AI can be used to promote differentiation in teaching and learning that is responsive to particularities of context and the realities of infrastructure. Recent policy suggestions have emphasized improving AI literacy and promoting public-private partnerships to address ethical violations and the uptake of AI.

The literature review highlights that AI has the potential to radically change the ways educational processes operate, achieving more personalized, efficient, and effective learning. However, implementation should be driven by fairness and ethics to maximize its benefits for all learners.

Summary and Research Gaps

Existing studies show that AI-based education systems can lead to more personalized learning and decrease administrative work, although some researchers remain concerned about the reliance on AI, the risk of replacing human interaction in education, and data privacy (Sahin & Topal, 2022; Zawacki-Richter et al., 2019). Existing evidence notwithstanding, we have yet to see empirical evidence of the pervasiveness of AI in Philippine classrooms and altered patterns of the teacher-student relationship. Additional work is warranted to consider the ethical dimensions of the integration of AI, as current policies demand closer scrutiny to ensure that student data protection is upheld and that AI in education is leveraged successfully. This study can contribute to the formulation of evidence-based policies.

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

METHODS

Research Design

This study employed a quantitative research design using an online survey to gather data on students' perceptions of AI in higher education. Quantitative questionnaires are effective for collecting measurable data from larger populations, revealing patterns and attitudes (Creswell, 2014; Johnson & Christensen, 2019). This methodology is particularly useful for exploring perceptions of emerging technologies like AI (Brown, 2021; Spector, 2019). The online format facilitates rapid data collection and reduces response bias (Evans and Mathur, 2005).

Population and Sampling

The study surveyed 110 undergraduate students from a private institution in Sampaloc, Manila. Although the sample size is small, research indicates that randomization can yield statistically significant insights into perceptions and attitudes (Fink, 2017; Tavakol & Dennick, 2011). Random sampling enhances representativeness and reduces selection bias, allowing for reasonable generalizations to similar educational contexts (Bryman, 2016).

Instrument

The survey instrument was adapted from a validated questionnaire, ensuring construct validity and reliability. Customizing instruments is recommended to maintain relevance for specific research purposes (DeVellis, 2016; Boateng et al., 2018). The survey included demographic questions and Likert-scale items to assess student perceptions of AI's influence on teaching and learning outcomes.

Data Collection

Data were collected via an online survey platform, providing efficient and accessible administration. This method is common in educational research due to its scalability and ease of access (Dillman et al., 2014). Online surveys also streamline data management and initial cleaning necessary for statistical analysis (Bryman, 2016).

Treatment of Data

Quantitative responses were analyzed using multiple linear regression to assess the relationship between students' AI usage and its perceived impact on examinations and learning. This systematic method is widely used in social sciences to evaluate predictor-outcome relationships, helping control for confounding variables and enhancing the interpretative validity of findings (Tabachnick & Fidell, 2019; Field, 2018).

Ethical Considerations

Ethics were crucial in this study. All respondents provided written informed consent, understanding they could voluntarily participate and withdraw at any time. They were assured of anonymity and that their information would be used solely for research. Confidentiality was maintained throughout. Survey and interview data were anonymized and stored in password-protected files.

RESULTS and DISCUSSION

Demography

The survey questionnaire was responded to by 110 college students. Most respondents were third-year students (61%), followed by second-year students (31%), and a small group of fourth-year students (7%). This distribution reflects a significant proportion of students progressing through the mid-phase of their undergraduate studies.

Students' Exposure to AI Tools: Frequency and Familiarity

In order to provide context on students' exposure to AI, the study collected data on the frequency of AI use, as well as their familiarity with specific AI tools. Figure 2 presents the summary of frequency of AI use among the participants.

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

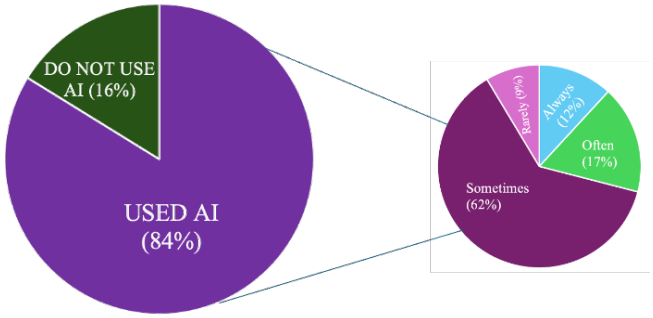

Figure 2. Students' Frequency of AI Use

Among the 110 respondents, 93 students (84%) were identified to have used AI in research and coursework activities, with usage frequencies varying. 62% of those who used AI said they are using AI tools "sometimes", while 12% and 17% reported that they are using AI tools "always" and "often", respectively. This indicates a growing familiarity with AI in academic research but suggests that AI has not yet become a pervasive tool for most students. Consistent with recent findings, the occasional use of AI tools among students reflects ongoing experimentation and selective use based on immediate needs rather than routine application (Martin et al., 2023).

Impacts to Teaching and Learning

Table 1 presents a regression analysis that indicates significant positive relationships between attitudes toward future AI integration in education and perceived impacts on exams (r = 0.601), teaching (r = 0.559), and learning (r = 0.549), all significant at α=0.01. These results suggest that as students' acceptance of AI in education grows, they are more likely to view AI as positively impacting exams, teaching, and learning.

Table 1: Regression Analysis of Future Education with AI to Impacts on Exams, Teaching, and Learning

Dependent Variables	r	r^2	*p-value*
Exams	0.601	0.361	<0.001*
Teaching	0.559	0.312	<0.001*
Learning	0.549	0.301	<0.001*

*significant at 0.01

Responses on future education with AI had significant positive linear relationships on impact on exams (r=0.601), impact on teaching (r=0.559), and impact on learning (r=0.549).

The analysis was run three times for the three dependent variables. It was reported that future education with AI statistically significantly predicted the impact on exams, teaching, and learning (α=0.01). This suggests that there is sufficient evidence on how future education with AI had a significant impact on how likely they impact exams, teaching, and learning, and these significant positive relationships were unlikely due to chance.

Our findings reveal a significant positive relationship between students' attitudes toward future AI integration in education and their perceived impacts of AI on exams, teaching, and learning (see Table 1). This suggests that as students become more accepting of AI in education, they are more likely to view its potential impact on various

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

aspects of their educational experience positively. This finding aligns with previous research highlighting the role of positive perceptions and attitudes in the successful adoption of technology in education (Chen & Tsai, 2018; Teo, 2011).

For instance, Teo (2011) found that students' positive attitudes toward e-learning significantly predicted their behavioral intention to use e-learning systems. Similarly, Chen and Tsai (2018) demonstrated that pre-service teachers with higher levels of technology acceptance were more likely to integrate technology into their teaching practices.

Our study extends these findings to the context of AI in education, suggesting that fostering positive attitudes toward AI among students may be crucial for its successful integration and acceptance. The observed positive relationships were consistent across different aspects of the educational experience, including exams, teaching, and learning. This indicates that students who hold favorable views toward AI in education tend to believe that AI can positively influence not only their assessment performance but also the quality of teaching and their overall learning experience.

This holistic perception of AI's potential benefits could be attributed to increasing awareness of AI's capabilities in personalized learning, adaptive assessment, and intelligent tutoring systems.

Furthermore, the relatively high correlation coefficients (ranging from 0.549 to 0.601) suggest a moderately strong association between attitudes and perceived impacts. This implies that attitudes toward AI are a significant predictor of how students perceive its potential influence on their education. However, it is important to acknowledge that other factors, such as prior experience with AI, perceived ease of use, and institutional support, may also play a role in shaping these perceptions (Dabbagh et al., 2019).

Future research should explore the interplay of these factors to gain a more comprehensive understanding of students' views on AI in education.

Conclusions

This study examined the attitudes and perceptions of undergraduate students toward the integration of AI in higher education, specifically focusing on its impact on exams, teaching, and learning. The regression analysis reveals significant positive relationships between students' attitudes toward the future integration of AI in education and their perceptions of its potential impacts on various aspects of their educational experience. Specifically, students who were more accepting of AI in education were more likely to view AI as beneficial for their exam performance, teaching experiences, and overall learning. These results align with previous research that underscores the importance of positive attitudes in the successful adoption of educational technologies. The moderate strength of the correlations suggests that attitudes toward AI are a crucial determinant of students' perceptions of its value in education, but other factors—such as prior experience with AI tools and institutional support—should also be considered in future research.

Recommendations

Based on these results, the following are recommended by this study:

1. Incorporating AI-based resources or assignments to help students develop a deeper understanding of the practical applications of AI in academic settings. Training programs for both students and educators on effective AI tool usage may also promote more frequent and confident use.
2. The study found that positive attitudes toward AI were significantly related to favorable perceptions of its impact on exams, teaching, and learning. Therefore, institutions should focus on initiatives that foster positive attitudes toward AI, such as workshops or seminars that highlight the potential benefits of AI for personalized learning and enhanced productivity.
3. The study highlights that attitudes toward AI are an important predictor of its perceived impacts, but other factors—such as prior experience with AI, ease of use, and institutional support—may also play a role. Future

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

research should explore these variables in greater depth to understand the broader factors that influence students' willingness to engage with AI. Longitudinal studies could also investigate how perceptions evolve over time as students gain more experience with AI.

4. As students increasingly view AI as a positive influence on teaching and learning, educators must be prepared to integrate AI into their teaching practices effectively. Professional development programs are essential to equip educators with the knowledge and skills to leverage AI tools to enhance instruction and student engagement.

By taking advantage of students' positive attitude towards AI use, educators can optimize the teaching-learning process and make it adaptive to the ever-changing need of the current generation.

REFERENCES

Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in Public Health, 6*, 149. https://doi.org/10.3389/fpubh.2018.00149

Brown, M. (2021). Emerging technologies in education: Perceptions and adoption trends. *Journal of Educational Technology Development, 15*(2), 45-60.

Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.

Chen, C. H., & Tsai, C. C. (2018). An investigation of the factors influencing pre-service teachers' intention to use mobile technology in their future classrooms. *Computers & Education, 121*, 181-191. https://doi.org/10.1016/j.compedu.2018.03.009

Chen, L., Chen, P., & Lin, Z. (2020). Artificial intelligence in education: A review. *IEEE Access, 8*, 75264-75278. https://doi.org/10.1109/ACCESS.2020.2988510

Commission on Higher Education CHED. (2021). Philippine roadmap for digital transformation in higher education 2021–2025. https://ched.gov.ph

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage.

Dabbagh, N., Benson, A. D., Denham, A., Joseph, R., & Guo, Z. (2019). Artificial intelligence in education: Promises and implications for teaching and learning. *Smart Learning Environments, 6*(1), 1-11.

DeVellis, R. F. (2016). *Scale development: Theory and applications* (4th ed.). Sage.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method* (4th ed.). Wiley. https://doi.org/10.1002/9781118456149

Evans, J. R., & Mathur, A. (2005). The value of online surveys. *Internet Research, 15*(2), 195-219. https://doi.org/10.1108/10662240510590360

Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5th ed.). Sage.

Fink, A. (2017). *How to conduct surveys: A step-by-step guide* (6th ed.). Sage.

ETCOR Educational Research Center Inc.
SEC Reg. No. 2024020137294-00
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

Hamzah, M. H., Salleh, S. M., Zaini, H., & Ibrahim, F. (2023). The role of TPACK in integrating intelligent tutoring systems for personalized learning. *Educational Technology Research and Development, 71*(3), 491-508. https://doi.org/10.1007/s11423-023-10178-9

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.

Johnson, B., & Christensen, L. (2019). *Educational research: Quantitative, qualitative, and mixed approaches* (7th ed.). Sage.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017-1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

National Privacy Commission. (2020). Data privacy act of 2012 (RA 10173). https://privacy.gov.ph

Republic of the Philippines. (2013). Enhanced basic education act of 2013 (RA 10533).

Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach* (4th ed.). Pearson.

Sahin, I., & Topal, A. D. (2022). Analyzing teacher competency with TPACK for K-12 AI education. *KI

Sapad, R. P., & Caballes, D. G. (2019). Learning styles-based differentiated instruction as a tool towards academic achievement of grade five pupils in Science and Health V. *CiiT International Journal of Artificial Intelligent Systems and Machine Learning, 11*(6), 111.

Spector, J. M. (2019). *Foundations of educational technology: Integrating research and practice*. Routledge. https://doi.org/10.4324/9781315764269

Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics* (7th ed.). Pearson Education, Inc.

Teo, T. (2011). Modelling technology acceptance in education: A study of pre-service teachers. *Computers & Education, 52*(2), 302-312. https://doi.org/10.1016/j.compedu.2011.06.006

Zawacki-Richter, O., Marón, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education, 16*(1), 39. https://doi.org/10.1186/s41239-019-0171-0