



## Transforming business education in IT: the role of mis in shaping future leaders

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### Abstract

*Integrating Management Information Systems (MIS) into business education is crucial for preparing future leaders to navigate technological advancements. The digital revolution, characterized by cloud computing, social media, and mobile systems, has fundamentally transformed business operations and educational delivery. MIS courses equip students with essential technological skills, fostering an environment where proficiency becomes second nature. Innovative tools like MyMISLab, video libraries, and decision-making simulations enhance student engagement by bridging theory and practice. Additionally, teaching ethics and security within MIS curricula is vital; case studies provide insights into the ethical and security challenges of the digital age, preparing students for real-world dilemmas. MIS education also helps students identify emerging job roles by developing non-routine cognitive skills such as critical thinking and problem-solving, essential for data-driven decision-making. Thus, integrating MIS into business **curricula** is necessary to ensure graduates are equipped to meet future business demands, emphasizing real-world applications and job preparedness..*

**Keywords:** MIS, MyMISLab, Leaders, Transforming Business Education, IT, Cloud computing

### 1. Introduction

In today's rapidly evolving business landscape, characterized by relentless technological advancements and increasing digitalization, the importance of a robust Management Information Systems (MIS) education for aspiring business professionals cannot be overstated. This article delves into the critical role of MIS in modern business education, highlighting a unique approach that moves beyond theoretical concepts to cultivate practical skills and future job preparedness.

Traditionally, business education has focused on core disciplines like finance, marketing, and operations. However, the pervasive influence of technology necessitates a paradigm shift, integrating MIS as a fundamental pillar of the curriculum (Gorgone et al., [1]). This integration is not merely about understanding technical jargon but about equipping students with the knowledge and skills to leverage technology for strategic decision-making,



problem-solving, and innovation. As highlighted by Bai et al. [2], "The digital transformation of business demands a new generation of business professionals who are not only tech-savvy but also possess strong analytical and problem-solving skills, along with an understanding of how technology can be used to create business value." This underscores the need for a pedagogical shift that emphasizes real-world applications and hands-on learning experiences, aligning with the call for greater relevance and practicality in business education (AACSB, [3]).

The business world is experiencing a technological renaissance, fueled by advancements in artificial intelligence (AI), big data analytics, cloud computing, and the Internet of Things (IoT), among others. These technologies are fundamentally reshaping business models, operational processes, and customer interactions (Bharadwaj et al., [4]). This digital transformation necessitates a corresponding evolution in business education. The 2020 Future of Jobs report by the World Economic Forum highlights an increasing need for skills like analytical reasoning, advanced problem solving, as well as technology design and programming.

Researchers share this perspective, stressing that graduates must have not only technical expertise but also adaptability, innovation, and critical thinking abilities to succeed in a world driven by technology (DeNisi Murphy, [5]).

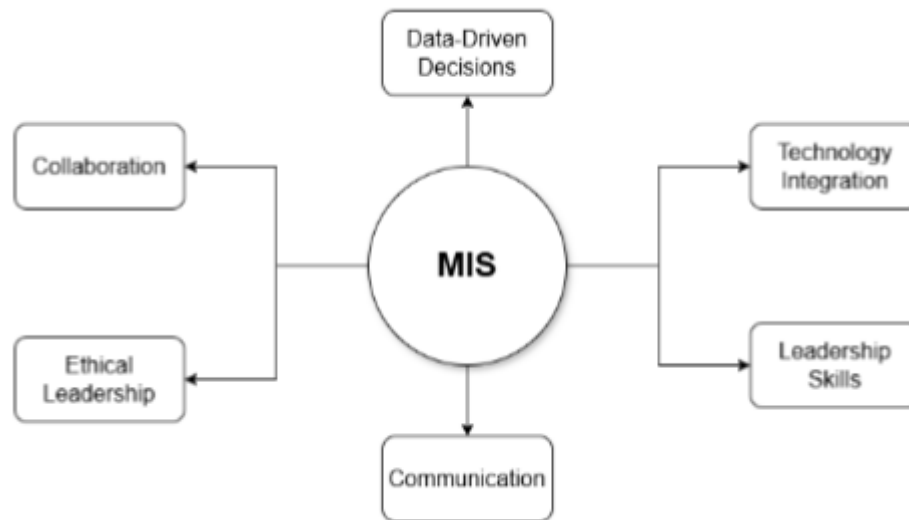
This article presents a forward-looking approach to integrating MIS into business education. It emphasizes real-world applications, future job preparedness, and innovative teaching tools that enhance student engagement and critical thinking.

**Real-World Applications:** Moving beyond theoretical frameworks, the focus is on equipping students with practical skills through case studies, simulations, and real-world projects, allowing them to apply MIS principles to solve contemporary business challenges. This is consistent with Kolb's [6] experiential learning theory, which underscores the significance of hands-on experiences and reflective observation in fostering effective learning. Recent studies highlight the effectiveness of project-based learning and industry collaborations in enhancing student engagement and developing practical skills in MIS education (Ribble Park, [7]).

**Future Job Preparedness:** The aim is to close the gap between academia and the workforce by aligning the curriculum with evolving technologies and industry trends, ensuring that graduates have the skills and expertise valued by employers in the digital era.

This requires close collaboration between universities and industry partners to ensure curriculum relevance and provide students with valuable work-integrated learning opportunities (Hausman et al., [8]). The rapid pace of technological change necessitates a dynamic and responsive curriculum that incorporates the latest advancements and industry best practices (Ahmad et al., [9]).

**Innovative Teaching Tools:**The article examines the incorporation of advanced technologies and teaching methods, including gamification, virtual reality, and data analytics tools, to develop immersive and interactive learning experiences that promote critical thinking and problem-solving abilities. This approach resonates with the principles of active learning and constructivism, which emphasize student engagement and knowledge construction (Prince Felder, [10]). Recent research highlights the positive impact of gamified learning and virtual reality simulations on student motivation, engagement, and knowledge retention in MIS courses (Yildirim et al., [11]).



**Figure 1.** Architecture MIS System Overview

By embracing this innovative approach to MIS education, we can empower future business leaders to navigate the complexities of a technology-driven world, fostering a generation of proactive problem solvers and strategic thinkers equipped to thrive in the digital age in Figure 1. The diagram illustrates the key components of a MIS. At the center is MIS, which is interconnected with six essential elements. Data-Driven Decisions involve using data analytics to inform strategic choices. Technology Integration refers to the seamless incorporation of new technologies to enhance system efficiency. Leadership Skills are



necessary for guiding teams and ensuring successful project outcomes. Communication is vital for effective information exchange within an organization. Ethical Leadership emphasizes the importance of integrity and ethical standards in management. Finally, Collaboration highlights the need for teamwork and cooperative efforts across different departments. Together, these components contribute to the effective functioning of an MIS.

This study adopts a qualitative approach based on a systematic review of existing literature combined with conceptual analysis. The objective of the paper is threefold: (i) to examine the evolving role of Management Information Systems (MIS) in transforming business education; (ii) to analyze how MIS contributes to leadership development, ethical awareness, and technological adaptability; and (iii) to propose an integrated framework linking innovative learning tools, ethical and security considerations, and future career preparedness.

## **2. The Digital Revolution in Education**

The digital revolution has significantly transformed various sectors, including education. Key technologies such as cloud computing, social media, and mobile systems are reshaping how educators teach and how students learn. This paper explores these technologies and discusses how Management Information Systems (MIS) courses prepare students for future technological changes.

### **2.1. Cloud Computing in Education**

Cloud computing offers scalable and flexible resources, enabling educational institutions to store vast amounts of data and provide access to learning materials anywhere, anytime. According to Jones [12], cloud platforms like Google Classroom and Microsoft Azure facilitate collaborative learning environments, allowing for seamless interaction between students and teachers. The scalability of cloud services ensures that schools can efficiently manage resources without significant upfront investment.

### **2.2. Social Media's Educational Impact**

Social media platforms provide innovative ways to engage students and foster communication. Smith [13] highlight that platforms like Twitter and Facebook can be used for educational purposes, such as sharing resources, hosting discussions, and enhancing community building. Social media also allows for realtime feedback and greater interaction, making learning more dynamic and interactive.



### 2.3. Mobile Systems and Learning

Mobile systems have transformed the way educational content is accessed. With the widespread use of smartphones and tablets, students now have the ability to engage with learning materials anytime, anywhere. Research by Alam [14] shows that mobile learning applications offer personalized learning experiences, catering to individual student needs and promoting self-paced learning. Apps like Duolingo and Khan Academy exemplify how mobile systems facilitate interactive and engaging education.

Preparing for Technological Changes: The Role of MIS Courses MIS courses equip students with the skills needed to navigate and leverage these technological advancements. They focus on the intersection of technology and business, preparing students to implement and manage information systems effectively.

### 2.4. Curriculum Focus

MIS courses cover a range of topics, including database management, cybersecurity, and data analytics. Johnson and Kim [15] emphasize that understanding these areas is crucial for future professionals who will manage and protect digital infrastructures.

### 2.5. Hands-On Experience

Students participate in hands-on projects that mirror real-world situations, enhancing their critical thinking and problem-solving abilities. This experiential learning method equips students with the skills needed to address technological challenges after graduation.

### 2.6. Emphasis on Adaptability

The dynamic nature of technology requires adaptability. MIS courses stress the importance of continuous learning and staying updated with emerging technologies. By fostering this mindset, courses enable students to stay adaptable and relevant in an ever-evolving digital environment.

In conclusion, the integration of cloud computing, social media, and mobile systems is reshaping education, offering new opportunities for teaching and learning. MIS courses play a pivotal role in preparing students for these technological changes by providing a comprehensive understanding of information systems and fostering essential skills. As the digital revolution continues, the ability to adapt and innovate will be crucial for success in the educational sector.



### **3. Innovative Learning Tools**

In recent years, the educational landscape has been transformed by innovative learning tools such as MyMISLab, video libraries, and decision-making simulations. These tools are designed to enhance student engagement and improve learning outcomes by providing interactive and immersive learning experiences. This paper explores these tools and their impacts, drawing on recent literature to highlight their effectiveness.

#### **3.1. MyMISLab**

MyMISLab is an online platform that offers a range of resources for learning management information systems (MIS). It provides interactive tutorials, assessments, and personalized study plans. A study by Bossman et al. [16] found that MyMISLab significantly improved student engagement and performance in MIS courses, as it allowed students to learn at their own pace and receive immediate feedback. This aligns with the constructivist learning theory, which emphasizes active student participation and self-directed learning (Mohammed et al. [17]).

#### **3.2. Video Libraries**

Video libraries, such as those offered by Khan Academy and Coursera, provide a vast array of instructional videos covering numerous subjects. These resources cater to diverse learning styles and offer students the flexibility to learn anytime and anywhere. According to Serra et al. [18], the use of video libraries has been shown to increase student motivation and understanding of complex topics, as visual and auditory elements can enhance comprehension and retention. Furthermore, video resources support differentiated instruction, allowing educators to address the varying needs of their students (Cagape, [19]).

#### **3.3. Decision-Making Simulations**

Decision-making simulations are dynamic scenarios that give students the opportunity to apply theoretical knowledge in real-world situations. These simulations are particularly effective in fields such as business, healthcare, and engineering. Research by Lin et al. [20] indicates that simulations improve critical thinking and problem-solving skills by providing a safe environment for experimentation and exploration. Students engage more deeply with the material when they can see the real-world implications of their decisions, leading to improved learning outcomes (Gredler, [21]).

#### **3.4. Impact on Student Engagement**



Engagement is a crucial factor in successful learning. Innovative tools like MyMISLab, video libraries, and simulations have been shown to increase student engagement by making learning more interactive and enjoyable. As noted by Johnson and Frances [22], students are more likely to participate in courses that incorporate these tools, resulting in higher attendance and lower dropout rates. Moreover, these tools foster a sense of autonomy and competence, which are key components of intrinsic motivation (Ryan et al. [23]).

### **3.5. Impact on Learning Outcomes**

The impact of innovative learning tools on learning outcomes has been widely documented. Studies consistently show that these tools contribute to better academic performance and deeper understanding of course material. For instance, Johnson and Frances [22] found that students using MyMISLab scored higher on assessments compared to those who relied solely on traditional textbooks. Similarly, Cagape et al. [19] reported that students who supplemented their studies with video libraries demonstrated improved comprehension and retention. Moreover, decision-making simulations have been found to enhance cognitive skills and knowledge application. Park et al. [24] highlighted that students who participated in simulations were better equipped to transfer theoretical knowledge to practical situations, a key indicator of successful learning.

### **3.6. Challenges and Considerations**

Despite their benefits, the implementation of innovative learning tools poses certain challenges. Access to technology and the digital divide remain significant barriers for some students (Smith et al., [25]). Additionally, educators must be adequately trained to integrate these tools effectively into their curriculum (Csenturk, [26]). Therefore, institutions must ensure that both students and teachers have the necessary resources and support to maximize the benefits of these tools.

In conclusion, innovative learning tools such as MyMISLab, video libraries, and decision-making simulations play a vital role in enhancing student engagement and improving learning outcomes [27–30]. By providing interactive and personalized learning experiences, these tools cater to diverse learning preferences and promote active participation. While challenges exist, the potential benefits of these tools in shaping the future of education are undeniable. As technology continues to evolve, so too will the opportunities for creating more effective and engaging learning environments.

## **4. Ethical and Security Considerations**



In today's digital age, the importance of teaching ethics and security in MIS cannot be overstated. As businesses increasingly rely on technology, professionals must navigate complex ethical dilemmas and security challenges. This paper explores the significance of integrating ethics and security into MIS curricula, supported by recent literature and illustrative case studies.

#### **4.1. Importance of Teaching Ethics in MIS**

Ethics in MIS involves understanding the moral implications of technology use and data management. With the rapid advancement of technology, ethical considerations have become increasingly complex. Teaching ethics in MIS equips students with the ability to recognize and address moral issues, fostering responsible decision-making.

#### **4.2. Ethical Decision-Making**

Ethical decision-making is a crucial skill for MIS professionals. According to Dellaportas et al. [31], students exposed to ethical training are better prepared to handle real-world situations involving privacy, intellectual property, and user consent. By understanding ethical frameworks, students can assess the implications of their actions and make informed choices that align with societal values.

**Case Study: Cambridge Analytica** The Cambridge Analytica scandal serves as a cautionary tale. The misuse of Facebook user data for political advertising highlighted significant ethical breaches in data handling. As noted by Hess [32], this case underscores the necessity for robust ethical guidelines and education in MIS programs to prevent similar occurrences.

#### **4.3. Importance of Teaching Security in MIS**

Security is a fundamental aspect of MIS, focusing on safeguarding information systems from unauthorized access, misuse, disclosure, disruption, alteration, or destruction. With the growing complexity of cyber threats, the need for skilled security experts has significantly increased.

#### **4.4. Developing Security Competence**

Integrating security education into MIS curricula is essential for developing competence in safeguarding information systems. According to Alnajim et al, [33], students trained in cybersecurity principles are more adept at identifying vulnerabilities and implementing



effective security measures. This knowledge is critical in protecting sensitive data and maintaining organizational integrity.

Case Study: Target Data Breach The Target data breach of 2013, which compromised 40 million credit and debit card accounts, exemplifies the devastating impact of inadequate security measures. The breach, costing the company millions, illustrates the importance of comprehensive security education. As highlighted by Meadows et al, [34], teaching students about such incidents emphasizes the **real-world** consequences of security lapses.

#### 4.5. Integrating Ethics and Security into MIS Curricula

To address the challenges posed by ethical and security issues, educators must integrate these topics into the MIS curriculum effectively. This involves a combination of theoretical knowledge and practical application.

#### 4.6. Curriculum Design

A well-rounded MIS curriculum should include courses on ethical theories, privacy laws, cybersecurity fundamentals, and risk management. Arnal [35] suggest incorporating case studies, simulations, and ethical dilemmas to enhance learning experiences. By engaging students in real-world scenarios, educators can foster critical thinking and problem-solving skills.

#### 4.7. Interdisciplinary Approach

An interdisciplinary approach can enrich MIS education by incorporating perspectives from law, philosophy, and computer science. According to Camilleri et al, [36], this approach encourages students to view ethical and security issues from multiple angles, promoting a deeper understanding of the complexities involved. In conclusion, teaching ethics and security in MIS is imperative for preparing students to navigate the challenges of the digital world. By integrating these topics into the curriculum, educators can equip future professionals with the skills and knowledge necessary to make ethical decisions and protect information systems. As technology continues to evolve, the role of ethics and security in MIS education will only grow in importance, shaping responsible and competent leaders in the field.

### 5. Preparing for Future Careers

MIS play a crucial role in preparing students for emerging job roles in the rapidly evolving job market. As technology continues to advance, new opportunities arise that require



a unique blend of skills. This paper explores how MIS helps students identify and prepare for these roles, emphasizing the importance of developing non-routine cognitive skills.

### **5.1. Identifying Emerging Job Roles**

The integration of MIS in education provides students with insights into current and future trends in the job market. By studying MIS, students gain a comprehensive understanding of how technology drives business innovation and creates new career opportunities.

### **5.2. Understanding Industry Trends**

MIS courses often include analyses of industry trends and technological advancements. According to Kim, Youngsik and Lee, Hojun [37], students who engage with these analyses can better anticipate emerging job roles and align their career paths accordingly. For instance, the rise of data analytics, cloud computing, and cybersecurity has led to new roles such as data scientists, cloud architects, and security analysts.

### **5.3. Networking and Professional Connections**

MIS programs frequently offer opportunities for networking with professionals in the field. These connections can provide valuable insights into emerging job roles and industry demands. Rutman, Jeremy [38] highlight the significance of internships and industry partnerships in helping students gain firsthand experience and understand the skills required for future roles.

### **5.4. Preparing for Emerging Job Roles**

Preparing for the future job market requires more than just technical skills. MIS education emphasizes the development of a diverse skill set, including both technical and non-technical competencies.

### **5.5. Technical Skills**

MIS programs equip students with essential technical skills in areas such as database management, systems analysis, and information security. These skills are foundational for many emerging roles. Johnson and Miller [39] note that proficiency in programming languages, data analysis tools, and cybersecurity measures is crucial for students aiming to excel in technology-driven careers.

### **5.6. Non-Routine Cognitive Skills**



In addition to technical skills, MIS education stresses the importance of non-routine cognitive skills—those that involve creativity, problem-solving, and critical thinking. These skills are increasingly valuable in a job market where routine tasks are often automated.

### **5.7. Problem-Solving and Critical Thinking**

The ability to solve complex problems and think critically is essential in navigating the challenges of new job roles. MIS courses often include case studies and project-based learning to enhance these skills.

According to Arnal [35], students who engage in problem-solving activities develop a mindset that is adaptable and innovative, key traits for success in dynamic environments.

### **5.8. Creativity and Innovation**

Creativity is another crucial non-routine cognitive skill fostered by MIS education. As businesses seek innovative solutions to remain competitive, the demand for creative thinkers has surged. Smith [13] emphasizes that MIS students trained to approach problems creatively can develop novel solutions that drive business growth and transformation.

### **5.9. The Significance of Non-Routine Cognitive Skills**

Non-routine cognitive skills are crucial as they distinguish human abilities from automated systems. With the ongoing advancements in artificial intelligence and machine learning, the capacity to handle tasks requiring human judgment is becoming more valuable than ever.

### **5.10. Adaptability in a Changing Job Market**

Adaptability is a key outcome of developing **non-routine** cognitive skills. The ability to learn and apply new skills quickly is essential in a job market characterized by constant change. Arnal [35] argue that adaptable individuals are better equipped to transition between roles and industries, making them more resilient in their careers.

### **5.11. Enhanced Collaboration and Communication**

Non-routine cognitive skills also enhance collaboration and communication, crucial elements in many emerging job roles. MIS education often involves team projects and interdisciplinary work, which foster these skills. According to Kim, Youngsik and Lee, Hojun [37], effective communication and collaboration are vital for roles that require cross-functional teamwork and interaction with diverse stakeholders.



In summary, MIS education is essential in readying students for future careers by enabling them to recognize and prepare for emerging job roles. By integrating both technical and non-routine cognitive skills, students are well-prepared to manage the complexities of today's job market. As technology advances, these skills will become increasingly important, highlighting the crucial role of MIS in shaping the workforce of tomorrow.

## 6. Conclusion

In this part, we conclude that the Imperative of Integrating MIS into Business curriculum as such:

- Importance of MIS in Business Education: Integrating MIS into business curriculum is crucial for preparing students to thrive in a technology driven world. As businesses increasingly rely on data and digital processes, understanding MIS becomes essential for future leaders. This paper reiterates the importance of MIS in education and calls educators to embrace technology in teaching.
- Equipping Students with Essential Skills: MIS education provides students with technical and analytical skills necessary for modern business environments. According to Johnson and Miller [39], MIS courses teach students how to manage information systems, analyze data, and implement technology solutions. These skills are indispensable as companies seek employees who can leverage technology for strategic advantage.
- Enhancing Decision-Making Capabilities: Understanding MIS also enhances decision-making capabilities. By learning how to interpret data and use information systems, students can make informed decisions that drive business success. Kim, Youngsik and Lee, Hojun [37] emphasize that MIS education bridges the gap between technical expertise and strategic thinking, enabling students to become effective decision-makers in complex scenarios.
- The Role of Educators: Educators are key in embedding MIS into business curricula. By adopting technology, they can develop dynamic learning environments that mirror the demands of the contemporary workplace.
- Innovative Teaching Methods: Educators are encouraged to adopt innovative teaching methods that incorporate technology. This includes using digital tools, simulations, and case studies to provide hands-on experience. Rutman, Jeremy [38] suggest that



interactive learning not only engages students but also enhances their understanding of complex concepts.

- **Preparing Students for the Future:** By integrating technology into teaching, educators prepare students for future challenges. The rapid pace of technological advancement means that students must be adaptable and proficient in using new tools. Arnal [35] argue that educators who embrace technology foster a culture of continuous learning, equipping students to navigate an everchanging job market.
- **Call to Action:** To remain relevant and effective, business **curriculum** must evolve with technological advancements. Educators are urged to: (1) **Integrate MIS into Core Courses:** Ensure that MIS is a fundamental component of business education, providing students with the skills and knowledge needed in today's digital economy. (2) **Embrace Technology in Teaching:** Utilize digital resources and innovative teaching strategies to enhance learning experiences and prepare students for the future. (3) **Foster Collaboration with Industry:** Establish partnerships with businesses to keep curricula aligned with industry needs and trends.
- **Promote Lifelong Learning:** Encourage students to view education as a continuous process, essential for staying current with technological changes.

This paper contributes to the literature by providing a structured conceptual synthesis of how Management Information Systems (MIS) transform business education in the digital era. By integrating perspectives on innovative learning tools, ethical and security education, and non-routine cognitive skill development, the study offers practical implications for curriculum design and academic–industry alignment. As technology continues to reshape industries, students equipped with MIS knowledge and skills will be better prepared to lead and innovate. Educators have a responsibility to embrace technology in their teaching practices, ensuring that their students are ready to meet the demands of the future workplace. By doing so, they will cultivate a new generation of business leaders capable of harnessing the power of information systems to drive success.

## References

- [1] J. U. Kim and R. Kishore, “Do we fully understand information systems failure? an exploratory study of the cognitive schema of is professionals,” *Information systems frontiers*, vol. 21, no. 6, pp. 1385–1419, 2019.



- [2] J. Heredia, M. Castillo-Vergara, C. Geldes, F. M. C. Gamarra, A. Flores, and W. Heredia, “How do digital capabilities affect firm performance? the mediating role of technological capabilities in the “new normal”,” *Journal of Innovation & Knowledge*, vol. 7, no. 2, p. 100171, 2022.
- [3] C. L. Beck Dudley, “Aacsb: Paving new ways in business education,” *Executive education after the pandemic: A vision for the future*, pp. 89–97, 2022.
- [4] A. Bharadwaj, O. A. El Sawy, P. A. Pavlou, and N. v. Venkatraman, “Digital business strategy: toward a next generation of insights,” *MIS quarterly*, pp. 471–482, 2013.
- [5] A. S. DeNisi and K. R. Murphy, “Performance appraisal and performance management: 100 years of progress?” *Journal of applied psychology*, vol. 102, no. 3, p. 421, 2017.
- [6] D. A. Kolb, *Experiential learning: Experience as the source of learning and development*. FT press, 2014.
- [7] J. Ball and M. Savin-Baden, “Postdigital learning for a changing higher education,” *Postdigital science and education*, vol. 4, no. 3, pp. 753–771, 2022.
- [8] N. Hausman, “University innovation and local economic growth,” *Review of Economics and Statistics*, vol. 104, no. 4, pp. 718–735, 2022.
- [9] S. F. Ahmad, M. K. Rahmat, M. S. Mubarik, M. M. Alam, and S. I. Hyder, “Artificial intelligence and its role in education,” *Sustainability*, vol. 13, no. 22, p. 12902, 2021.
- [10] M. J. Prince and R. M. Felder, “Inductive teaching and learning methods: Definitions, comparisons, and research bases,” *Journal of engineering education*, vol. 95, no. 2, pp. 123–138, 2006.
- [11] İ. Yıldırım and S. Şen, “The effects of gamification on students’ academic achievement: A meta-analysis study,” *Interactive Learning Environments*, vol. 29, no. 8, pp. 1301–1318, 2021.
- [12] F. Jonske, K. Osthus, A. Dada, E. Nasca, J. Fragemann, J. Alff, O. Bakumenko, M. Birnbach, M. Kondratenko, L. Reinike et al., “Designing and implementing an interactive cloud platform for teaching machine learning with medical data,” in *Artificial Intelligence for Security: Enhancing Protection in a Changing World*. Springer, 2024, pp. 259–292.



- [13] T. Smith and A. Short, “Needs affordance as a key factor in likelihood of problematic social media use: Validation, latent profile analysis and comparison of tiktok and facebook problematic use measures,” *Addictive Behaviors*, vol. 129, p. 107259, 2022.
- [14] A. Alam and A. Mohanty, “Educational technology: Exploring the convergence of technology and pedagogy through mobility, interactivity, ai, and learning tools,” *Cogent Engineering*, vol. 10, no. 2, p. 2283282, 2023.
- [15] K. F. Johnson, H. Kim, C. E. Molina, K. A. Thompson, S. Henry, and B. Zyromski, “School counseling prevention programming to address social determinants of mental health,” *Journal of Counseling & Development*, vol. 101, no. 4, pp. 402–415, 2023.
- [16] A. Bossman and S. K. Agyei, “Technology and instructor dimensions, e-learning satisfaction, and academic performance of distance students in ghana,” *Heliyon*, vol. 8, no. 4, 2022.
- [17] S. Mohammed and L. Kinyo, “Constructivist theory as a foundation for the utilization of digital technology in the lifelong learning process,” *Turkish Online Journal of Distance Education*, vol. 21, no. 4, pp. 90–109, 2020.
- [18] L. Serra-Marín and N. Berbel-Gómez, “The impact of the use of technology on student engagement and motivation in the music classroom,” *Journal of Music, Technology & Education*, vol. 14, no. 2-3, pp. 157–178, 2021.
- [19] W. Cagape, H. Batao, F. Atillo, M. G. Tampus, C. But-ay, and J. Malnegrof, “Differentiated instruction practices: A disclosure of receiving teachers,” *Differentiated Instruction Practices: A Disclosure of Receiving Teachers*, vol. 127, no. 1, pp. 21–21, 2023.
- [20] P.-H. Lin, P.-S. Huang, Y. Geng, and Y.-M. Huang, “Enhancing problem-based learning with computational thinking concepts for nursing students in virtual simulation context: Bridging knowledge and practice,” *Education and Information Technologies*, pp. 1–21, 2024.
- [21] J. Gredler and D. Harland, “Online faculty’s use of technology when advising doctoral capstone writers,” *Australasian Journal of Educational Technology*, vol. 38, no. 3, pp. 43–57, 2022.
- [22] F. V. Johnson, “Teachers’ perceptions on the influence of kahoot! on the mathematics achievement of high school students,” Ph.D. dissertation, The Chicago School of Professional Psychology, 2023.



- [23] R. M. Ryan, J. J. Duineveld, S. I. Di Domenico, W. S. Ryan, B. A. Steward, and E. L. Bradshaw, “We know this much is (meta-analytically) true: A meta-review of metaanalytic findings evaluating self-determination theory.” *Psychological Bulletin*, vol. 148, no. 11-12, p. 813, 2022.
- [24] S. Park, H. J. Shin, H. Kwak, and H. J. Lee, “Effects of immersive technology–based education for undergraduate nursing students: Systematic review and metaanalysis using the grading of recommendations, assessment, development, and evaluation (grade) approach,” *Journal of Medical Internet Research*, vol. 26, p. e57566, 2024.
- [25] E. R. Smith, K. Hodgkin, and N. Young, “Student transitions to university in wales: A mixed-method study of the enablers and barriers of first-year engagement,” *International Journal of Educational Research Open*, vol. 3, p. 100216, 2022.
- [26] B. Şentürk, B. A. Dünya, and M. C. Demir, “Training 21<sup>st</sup> century english language teachers in turkish context: Development of a technology-enhanced measurement curriculum,” *Journal of Measurement and Evaluation in Education and Psychology*, vol. 14, no. Özel Sayı, pp. 345–358, 2023.
- [27] K. C. Laudon and J. P. Laudon, *Essentials of management information*. New Jersey: Prentice-Hall. Mayasari, PDS, & Sadeli, D.(2016). The . . . , 2003.
- [28] K. Laudon and J. Laudon, *Management Information Systems: International Edition*, 11/E. Citeseer, 2009.
- [29] W. Sause, J. Woodside, and S. Amiri, “Applying virtual reality to business simulations for e-learning,” in *EdMedia+ Innovate Learning*. Association for the Advancement of Computing in Education (AACE), 2016, pp. 1720–1724.
- [30] L. Slusky, “Lessons from online teaching,” in *EdMedia+ Innovate Learning*. Association for the Advancement of Computing in Education (AACE), 2019, pp. 1742–1756.
- [31] S. Dellaportas, L. A. Nguyen, and D. Luo, “Fact or fiction? elevating accounting students’ ethical sensitivity and moral reasoning with ethics education interventions,” *Research Handbook on Accounting and Ethics*, pp. 64–82, 2023.
- [32] J. L. Hess, D. Kim, and N. D. Fila, “Critical incidents in ways of experiencing ethical engineering practice,” *Studies in Engineering Education*, vol. 3, no. 2, pp. 1–30, 2023.



- [33] A. M. Alnajim, S. Habib, M. Islam, H. S. AlRawashdeh, and M. Wasim, “Exploring cybersecurity education and training techniques: a comprehensive review of traditional, virtual reality, and augmented reality approaches,” *Symmetry*, vol. 15, no. 12, p. 2175, 2023.
- [34] J. J. Meadows III, “Mandatory gamified security awareness training impacts on texas public middle school students: A qualitative study,” Ph.D. dissertation, Colorado Technical University, 2023.
- [35] M. Arnal-Palacián and J. M. Johnson, “Analysis of interdisciplinary stem lessons generated by pre-service and inservice teachers in the united states,” *Tech. Rep.*, 2023.
- [36] S. Camilleri and A. Bezzina, “Adopting the circle pedagogy–relatedness, autonomy and competence,” *Pastoral Care in Education*, vol. 41, no. 4, pp. 449–472, 2023.
- [37] Y. Kim and H. Lee, “Investigating the effects of career education programs on high school students’ career development competencies in korea,” *Sustainability*, vol. 15, no. 18, p. 13970, 2023.
- [38] J. Rutman, “Exploring the role of internships in personal and professional development,” 2023.
- [39] A. Johnson and S. Miller, “Total learning architecture standards digital learning acquisition techniques.” *Advanced Distributed Learning Initiative*, 2023.