

HARNESSING THE POTENTIAL OF ARTIFICIAL INTELLIGENCE AND SCIENCE EDUCATION TO NURTURE ENTREPRENEURSHIP AND STRENGTHEN SECURITY IN SUSTAINABLE DEVELOPMENT FRAMEWORKS IN KANO METROPOLIS

By

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Abstract:

This research investigates the synergistic potentials of Artificial Intelligence (AI) and science education in nurturing entrepreneurship and enhancing security within the framework of sustainable development. The study adopts a descriptive survey research design, targeting secondary school science educators, technology entrepreneurs and security experts, with a sample of 250 respondents selected through stratified random sampling. Data collection was conducted through structured questionnaires for quantitative analysis and interview guides for qualitative insights. To ensure validity and reliability, the research instruments undergo expert validation by AI, science education, and entrepreneurship professionals, and a pilot study was conducted with 30 respondents, with Cronbach's Alpha used to assess internal consistency. Data analysis was conducted using descriptive statistics of mean, standard deviation, regression, correlation and thematic analysis. The findings indicate that AI-integrated science education enhances entrepreneurship, strengthens security measures, and nurtures innovation, though challenges such as AI literacy gaps, inadequate infrastructure, and ethical concerns persist. The study recommends increased investment in AI-driven education, targeted teacher training, policy frameworks for AI integration, and stronger academia-industry collaboration to maximize AI's role in encouraging entrepreneurship and security within sustainable development frameworks.

Keywords: Artificial Intelligence (AI), Science Education, Entrepreneurship, Sustainable Development and Security

Introduction

The intersection of Artificial Intelligence (AI) and Science Education presents a transformative opportunity to drive progress in two critical areas for sustainable development, entrepreneurship and security (Davenport & Ronanki, 2020). In today's rapidly evolving technological landscape, AI technologies are playing an increasingly pivotal role in re-shaping industries, streamlining entrepreneurship operations, and enhancing security measures. These advancements offer the potential to not only optimize entrepreneurship processes but also address pressing global challenges such as climate change, resource management, and public safety, all of which are integral to achieving the United Nations Sustainable Development Goals (SDGs) (UN, 2023). As AI continues to evolve, its ability to analyze large datasets, automate complex tasks, and predict future trends is poised to revolutionize various sectors, from healthcare to agriculture, making it a cornerstone of future economic and security frameworks (Brynjolfsson & McAfee, 2021).

At the same time, science education serves as the foundation upon which the next generation of entrepreneurs can be built. In nurturing critical thinking, problem-solving, and innovation skills,

science education equips individuals with the cognitive tools necessary to navigate complex, real-world challenges (Higgins, 2021). These competencies are essential for entrepreneurship, where the ability to identify opportunities, innovate, and adapt to changing circumstances is essential for success. Moreover, science education encourages a deep understanding of the natural and technological worlds, helping students appreciate the interconnectiveness of various systems and the need for sustainable practices (Zubair et al., 2022).

According to Higgins, (2021) when AI and science education are integrated, they create a powerful synergy that can drive innovation and entrepreneurship. Science education not only cultivates a strong knowledge base in the sciences but also instills an entrepreneurial mindset—one that embraces risk-taking, creativity, and resilience. Through the application of AI in professional ventures, entrepreneurs can leverage automation, data analytics, and machine learning algorithms to enhance operational efficiency, improve decision-making, and uncover new opportunities (Davenport & Ronanki, 2020). AI can also be used to create innovative products and services that address environmental and social challenges, contributing to a more sustainable development and economy (Elakkiya & Srinivasan, 2021).

Chio and Freeman (2018), stated that AI's role in strengthening security is a key element in the entrepreneurial environment. As businesses grow and global markets become more interconnected, the risks associated with cyber threats, fraud, and data breaches also increase. Through integrating AI with security frameworks, entrepreneurs can protect their ventures from emerging threats, ensuring that their businesses remain resilient in the face of external challenges. AI-powered security systems, such as predictive analytics and advanced encryption technologies, can safeguard sensitive information, enhance disaster response strategies, and create safer environments for both businesses and consumers (Zhou & Zhang, 2022).

In due course, the integration of AI and science education holds the potential to cultivate a new generation of entrepreneurs who are not only tech-savvy but also equipped with the skills and mindset necessary to tackle global challenges. These entrepreneurs will be empowered to innovate in ways that contribute to economic growth, environmental sustainability, and social equity. In developing a deep understanding of both the technological and ethical implications of AI, science education can ensure that future entrepreneurs are prepared to address security concerns, develop sustainable solutions, and drive positive change within their communities and beyond (UNESCO, 2021).

Problem Statement

Despite the growing recognition of Artificial Intelligence (AI) as a powerful tool for driving economic growth and enhancing security, there remains a significant gap in research that examines how science education can be strategically harnessed to develop entrepreneurship, especially within the framework of sustainable development. While much has been written about AI's potential to transform industries, streamline business operations, and strengthen security systems, there is limited exploration into how science education can equip individuals with the necessary skills to influence AI in the creation of entrepreneurial ventures. Furthermore, while entrepreneurship is recognized as an important driver of economic development, particularly in emerging economies, there is a need for a better understanding of how science education can provide a strong foundation for aspiring entrepreneurs to effectively apply AI in a way that supports sustainable practices and addresses long-term global challenges. Therefore, this study

seeks to fill this gap by examining the intersection of AI, science education, and entrepreneurship in the context of sustainable development.

Research Objectives

The objectives of this study are:

1. To investigate the role of science education in nurturing entrepreneurial skills and fostering innovation.
2. To analyze the potential of AI in strengthening security measures to ensure a stable environment for entrepreneurship.
3. To assess the combined impact of science education and AI on achieving sustainable development goals.

Research Questions

1. How does science education contribute to the development of entrepreneurial competencies and mindset?
2. What are the ways AI can be applied to entrepreneurship for improved efficiency, innovation, and security?
3. How can the integration of AI and science education support the achievement of sustainable development goals, particularly in developing entrepreneurship and strengthening security?

Literature Review

Science education plays a central role in developing entrepreneurial thinking and fostering innovation. At its core, science education is designed to stimulate curiosity and encourage analytical thinking—key components in nurturing an entrepreneurial mindset (Holmes, Bialik & Fadel, 2021). Through the exploration of scientific concepts and the encouragement of inquiry-based learning, science education equips individuals with the cognitive skills necessary to identify opportunities and address complex, real-world problems. As students engage in scientific processes, they learn to observe patterns, hypothesize solutions, and critically evaluate outcomes—skills that are directly transferable to entrepreneurship. According to Higgins (2021), the ability to think analytically and adaptively is fundamental for success in the fast-paced world of entrepreneurship, where rapid problem-solving and creative thinking are essential.

Furthermore, science education fosters a mindset of creativity, adaptability, and resilience—traits that are integral to entrepreneurship. The entrepreneurial mindset cultivated through science education is not limited to technical knowledge but extends to the application of scientific principles to real-world challenges. Research by Zubair (2022) highlights that science education programs that incorporate entrepreneurship training are particularly effective in developing the entrepreneurial skills that are necessary for economic advancement and innovation. By focusing on problem-solving and critical thinking, these programs help individuals develop the confidence and capabilities needed to launch new ventures and contribute to the creation of sustainable economic opportunities.

Artificial Intelligence (AI) has rapidly emerged as a transformative tool for entrepreneurs, offering innovative solutions that significantly enhance productivity, streamline operations, and optimize decision-making processes. According to Brynjolfsson and McAfee (2021), AI-driven

technologies such as machine learning and natural language processing are reshaping the way businesses function, providing entrepreneurs with powerful tools to make data-driven decisions, predict market trends, and enhance customer experiences. These technologies enable entrepreneurs to gain valuable insights from vast amounts of data, which can inform product development, marketing strategies, and overall business direction (Holmes, Bialik & Fadel, 2021).

AI's potential to automate routine tasks is another key factor that makes it an invaluable asset for entrepreneurs. Using automating repetitive and time-consuming processes, AI frees up time and resources, allowing entrepreneurs to focus on higher-level tasks such as innovation and business expansion. This shift not only boosts productivity but also opens up new opportunities for sustainable business ventures. As Davenport and Ronanki (2020) suggest, AI-driven automation empowers entrepreneurs to operate more efficiently, leading to the creation of new business models and innovative products and services. The integration of AI into entrepreneurship thus offers a pathway to more efficient, scalable, and sustainable ventures that are capable of addressing both market demands and global challenges.

Security is a fundamental pillar of sustainable development, as it ensures the safety and stability required for economic growth, social progress, and environmental sustainability. In the context of sustainable development, security is not only about protecting physical assets but also about safeguarding the systems and processes that enable communities to thrive (Sarker, et al, 2020). AI plays a crucial role in enhancing security by offering advanced technologies such as predictive analytics, facial recognition, and cybersecurity solutions (Zhou & Zhang, 2022). AI's ability to analyze large datasets and identify patterns enables it to detect security threats in real time, prevent fraud, and mitigate risks before they escalate.

AI is also instrumental in enhancing cybersecurity, a growing concern as digital transformation accelerates. The use of AI to monitor and protect data infrastructure is vital in preventing cyberattacks, which can disrupt business operations, compromise sensitive information, and damage public trust. Moreover, AI's capacity for real-time threat detection and response enables businesses and governments to strengthen their security frameworks, making them more resilient to emerging challenges. According to Elakkiya and Srinivasan (2021), AI can also be applied in disaster management, optimizing resource allocation, and improving emergency response systems. By enhancing preparedness and response capabilities, AI contributes significantly to security within the broader context of sustainable development, ensuring that communities can effectively recover from crises and continue their path toward growth and stability.

The integration of AI into science education presents a unique opportunity to equip future generations with the technical and analytical skills needed to address the complex challenges of the modern world. By incorporating AI technologies into science curricula, educators can provide students with hands-on experience in working with cutting-edge tools and techniques, fostering a deep understanding of both the technical aspects of AI and its real-world applications. This integration ensures that students are not only familiar with the scientific concepts underlying AI but are also prepared to apply these concepts in entrepreneurial ventures and security frameworks.

Moreover, the synergy between AI and science education can contribute directly to achieving the United Nations Sustainable Development Goals (SDGs). By equipping students with the skills to innovate and leverage AI in solving pressing global challenges, science education plays a key

role in fostering sustainable practices, improving resource management, and ensuring the safety of communities. As UNESCO (2021) notes, the integration of AI into science education helps students understand the ethical implications of technology, preparing them to make informed decisions that balance innovation with social responsibility. This approach not only enhances the technical capabilities of future entrepreneurs but also encourages them to consider the broader societal impact of their work, thus driving sustainable economic growth, environmental protection, and social equity. Therefore, the integration of AI into science education is a powerful tool for preparing future entrepreneurs to navigate the complexities of the digital economy while addressing the challenges of sustainable development. By combining the critical thinking and problem-solving skills developed through science education with the transformative potential of AI, this approach creates a new generation of entrepreneurs capable of driving innovation, enhancing security, and contributing to a more sustainable and equitable future.

Methodology

This study adopts a descriptive survey research design, utilizing both quantitative and qualitative approaches to examine the role of Artificial Intelligence (AI) and science education in fostering entrepreneurship and enhancing security within sustainable development frameworks. The target population comprises secondary school science educators, students, technology entrepreneurs and security experts. A stratified random sampling technique was employed to ensure diverse representation, with a sample size of 250 respondents, including 100 science teachers, entrepreneurs 100 and 50 security professionals. The data collection process followed ethical protocols, obtaining informed consent from participants and ensuring confidentiality. Questionnaires are distributed both physically and electronically, while interviews are conducted in person and via online platforms. The collected data are analyzed using descriptive statistics of mean, standard deviation was used to summarize responses, while inferential statistics of regression and was used to examine relationships, and thematic analysis was used for qualitative data. The study adheres to ethical standards, maintaining participant anonymity and secure data storage, ensuring compliance with research ethics. Through this methodology, the study systematically explores how AI and science education contribute to entrepreneurship, security, and sustainable development.

Results

Table 1: Descriptive statistics for perception of impact of AI and science education on entrepreneurship

Variable	Mean	Standard Deviation
Impact of AI on Entrepreneurs Operations	4.5	0.8
Importance of Science Education for Entrepreneurial Thinking	4.3	0.7
AI's Role in Enhancing Security	4.6	0.6
Entrepreneurial Skills Developed Through Science Education	4.2	0.9
AI's Contribution to Predicting Market Trends	4.4	0.8

Table 1 presents the mean scores and standard deviations of respondents' perceptions regarding the impact of artificial intelligence (AI) and science education on entrepreneurship. AI's role in enhancing security received the highest mean score ($M = 4.6$, $SD = 0.6$), indicating strong

agreement among respondents and a high level of consensus. Similarly, the impact of AI on business operations ($M = 4.5$, $SD = 0.8$) was rated highly, showing that respondents recognize AI's transformative role in improving business functions. AI's contribution to predicting market trends ($M = 4.4$, $SD = 0.8$) also received a strong positive rating, reflecting its perceived usefulness in business forecasting. Regarding science education, respondents acknowledged its importance in entrepreneurial thinking ($M = 4.3$, $SD = 0.7$), highlighting its role in fostering innovation and problem-solving skills. Entrepreneurial skills developed through science education received the lowest mean score ($M = 4.2$, $SD = 0.9$), though still relatively high, indicating a generally positive perception but with slightly more variability in responses. Therefore, the findings suggest that both AI and science education are seen as crucial to business success, with AI's role in security receiving the highest level of agreement.

Table 2: Correlation Matrix of AI, Science Education, Entrepreneurship, and Security

Variable	AI & Entrepreneurship	Science Education & Entrepreneurship	AI & Security	Science Education & Security
AI & Entrepreneurship	1.00	0.72**	0.68**	0.54*
Science Education & Entrepreneurship	0.72**	1.00	0.60*	0.63**
AI & Security	0.68**	0.60*	1.00	0.75**
Science Education & Security	0.54*	0.63**	0.75**	1.00

Note: * $p < 0.05$, ** $p < 0.01$

Table 2 highlights correlation relationships between AI, science education, entrepreneurship, and security. A strong positive correlation ($r = 0.72$, $p < 0.01$) exists between AI & Entrepreneurship and Science Education & Entrepreneurship, indicating that both AI and science education significantly contribute to entrepreneurial development. Similarly, AI & Entrepreneurship is strongly correlated with AI & Security ($r = 0.68$, $p < 0.01$), suggesting that advancements in AI for business growth are closely linked to its role in security improvements.

The strongest correlation ($r = 0.75$, $p < 0.01$) is between AI & Security and Science Education & Security, implying that security improvements benefit from both AI-driven advancements and scientific knowledge. Additionally, Science Education & Entrepreneurship is moderately correlated with AI & Security ($r = 0.60$, $p < 0.05$), suggesting that science education supports both business growth and AI-driven security measures. A strong relationship ($r = 0.63$, $p < 0.01$) between Science Education & Entrepreneurship and Science Education & Security highlights the crucial role of scientific knowledge in fostering both entrepreneurial and security-related innovations. Furthermore, AI & Entrepreneurship and Science Education & Security exhibit a moderate correlation ($r = 0.54$, $p < 0.05$), indicating that AI-driven entrepreneurship can benefit from security-related advancements influenced by science education. Therefore, the findings suggest a strong interconnection between AI, science education, entrepreneurship, and security, with AI and science education playing vital roles in both business development and security enhancement.

Table 3: Regression Analysis of Science Education and AI Integration on Entrepreneurial Success and Security Resilience

Dependent Variable	Independent Variables	Coefficient	Standard Error	t-value	p-value
Entrepreneurial Success	Science Education	0.32**	0.09	3.56	0.001
Entrepreneurial Success	AI Integration	0.45**	0.10	4.50	0.000
Security Resilience	Science Education	0.28*	0.12	2.33	0.022
Security Resilience	AI Integration	0.52**	0.11	4.73	0.000

Note: * $p < 0.05$, ** $p < 0.01$

Table 3 presents the results of a regression analysis examining the influence of science education and AI integration on entrepreneurial success and security resilience. The findings indicate that both independent variables significantly contribute to the dependent variables, though AI integration appears to have a stronger impact overall. For entrepreneurial success, science education ($\beta = 0.32$, $p = 0.001$) has a significant positive effect, suggesting that scientific knowledge nurtures entrepreneurial capabilities. However, AI integration ($\beta = 0.45$, $p < 0.001$) demonstrates an even stronger influence, indicating that entrepreneurs leveraging AI are more likely to achieve success. The higher t-value (4.50) for AI integration compared to science education (3.56) further reinforces this finding. Regarding security resilience, science education ($\beta = 0.28$, $p = 0.022$) has a moderate yet significant effect, implying that scientific knowledge contributes to enhancing security measures. However, AI integration ($\beta = 0.52$, $p < 0.001$) has the strongest impact on security resilience, suggesting that AI-driven solutions are crucial for strengthening security frameworks. The high t-value (4.73) for AI integration compared to science education (2.33) highlights AI's dominant role in this domain. Therefore, the results suggest that while both science education and AI integration positively influence entrepreneurial success and security resilience, AI integration has a more substantial impact in both areas.

Table 4: Thematic Analysis of Science Education, AI, Entrepreneurship, and Security

Theme	Sample Quotes	Frequency
Role of Science Education in Entrepreneurship	"Science education helped me think critically and find innovative solutions."	15
Impact of AI on Entrepreneurship Innovation	"AI allows me to automate processes and make better decisions faster."	18
AI's Contribution to Security	"AI helps us predict cyber threats and secure our data."	12
Integration of AI in Science Education	"Integrating AI in our science curriculum will help us better prepare for future challenges."	10
Challenges in Implementing AI for Security	"The cost of AI security systems is a barrier for small businesses."	8

Table 4 reveals thematic analysis that AI's impact on entrepreneurial innovation was the most frequently mentioned theme (18 responses), with respondents highlighting how AI enhances decision-making and automates processes. The role of science education in entrepreneurship was also widely recognized (15 responses), emphasizing its contribution to critical thinking and innovation. Additionally, AI's contribution to security (12 responses) was noted, with respondents acknowledging its role in predicting and preventing cyber threats. The integration of AI in science education (10 responses) was seen as essential for preparing students for future

technological advancements. However, challenges in implementing AI for security (8 responses) were also highlighted, with cost being a significant barrier, particularly for small businesses. Therefore, the findings indicate strong recognition of AI's role in entrepreneurship and security, alongside the foundational importance of science education in fostering innovation, though challenges in AI adoption remain.

Discussion of Findings

The findings from this study highlight the significant role of AI and science education in shaping entrepreneurship and security. The most frequently mentioned theme was the impact of AI on entrepreneurial innovation, where respondents emphasized how AI enhances decision-making and automates business processes. This aligns with previous research by Bughin et al. (2018), which found that AI-driven automation significantly improves business efficiency and innovation by enabling data-driven decision-making and predictive analytics. Similarly, Brynjolfsson and McAfee (2017) argue that AI is transforming industries by reducing operational costs and enhancing market competitiveness.

Another key theme was the role of science education in entrepreneurship, with respondents acknowledging its contribution to critical thinking and problem-solving skills. This supports the findings of Blenker et al. (2014), who emphasize that science education fosters an inquiry-based mindset essential for entrepreneurial success. Science education provides students with analytical skills and a foundation for technological advancements, which are crucial for innovation-driven economies (OECD, 2019). Furthermore, respondents highlighted AI's contribution to security, particularly in predicting and preventing cyber threats. This is consistent with studies by Sarker et al. (2020), which demonstrate how AI enhances cybersecurity through real-time threat detection and automated responses. AI-powered security systems, such as machine learning-based intrusion detection, are increasingly being adopted to safeguard sensitive data and infrastructure (Chio & Freeman, 2018). However, while AI offers significant security advantages, challenges in implementing AI for security were also noted, with cost being a major barrier for small businesses. This finding is in line with Benaich and Hogarth (2021), who state that the high cost of AI adoption and maintenance remains a challenge, particularly for organizations with limited resources.

Additionally, the integration of AI in science education was seen as essential for preparing students for future technological advancements. Research by Holmes et al. (2021) supports this view, arguing that AI-enhanced learning environments improve student engagement and understanding of complex scientific concepts. The adoption of AI tools in science education, such as virtual laboratories and intelligent tutoring systems, has been shown to enhance learning outcomes and prepare students for AI-driven industries (Luckin et al., 2016). Thus, the findings suggest that AI and science education play important roles in fostering entrepreneurship and security, yet challenges such as cost barriers in AI implementation remain. Policymakers and educators should consider strategies to enhance access to AI technologies and strengthen science education curricula to equip students with the necessary skills for the digital economy.

Conclusion

The findings of this study underscore the pivotal role of AI integration and science education in advancing both entrepreneurial success and security resilience. As we transition into an increasingly digital and interconnected world, the impact of AI on entrepreneurship is

undeniable. AI not only drives innovation but also enhances decision-making, streamlining operations, and opening new avenues for growth. Entrepreneurs who harness AI technologies are better positioned to thrive in a competitive global market. Similarly, science education, by fostering critical thinking and problem-solving skills, serves as the bedrock for entrepreneurial development. It cultivates the mindset necessary for individuals to approach challenges with creativity and resilience, thus preparing them for the complexities of modern business landscapes.

In the realm of security, AI's contribution is equally transformative. The study reveals that AI plays a crucial role in improving cybersecurity measures by enabling real-time threat detection, predictive analytics, and automated response systems. As cyber threats become more sophisticated, AI provides a powerful tool for organizations to safeguard sensitive data and infrastructure. However, despite its potential, the high cost of AI implementation remains a significant barrier, particularly for small businesses, highlighting the need for more affordable solutions and supportive policies.

The integration of AI in science education emerges as another important factor. Through embedding AI technologies into science curricula, educational systems can equip students with the knowledge and skills required to navigate and innovate in the digital economy. This alignment of AI and education not only enhances the quality of learning but also prepares students to meet the challenges of an AI-driven future. As such, AI literacy is becoming a fundamental aspect of modern education, one that should be prioritized across all levels of schooling. Therefore, this study illustrated that AI and science education are inextricably linked to the development of entrepreneurial capabilities and security resilience.

Recommendations

Based on the findings, the following recommendations are proposed:

1. AI training programs should be developed to help entrepreneurs maximize AI-driven business solutions.
2. Science curricula should emphasize problem-solving, creativity, and innovation, aligning with entrepreneurial skills.
3. Schools and universities should introduce interdisciplinary courses combining science education and entrepreneurship.
4. Policymakers should promote AI-driven cybersecurity initiatives to enhance national and business security.
5. AI security tools should be made affordable and accessible, particularly for small enterprises.
6. Teacher training programs should incorporate AI literacy to ensure educators can effectively use AI in classrooms.

References:

- Blenker, P., Dreisler, P., Faergeman, H. M., & Kjeldsen, J. (2014). A framework for developing entrepreneurship education in a university context. *International Journal of Entrepreneurial Behavior & Research*, 20(5), 409-424.
- Brynjolfsson, E., & McAfee, A. (2017). *Machine, platform, crowd: Harnessing our digital future*. W.W. Norton & Company.

- Brynjolfsson, E., & McAfee, A. (2021). *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. W.W. Norton & Company.
- Bughin, J., Seong, J., Manyika, J., Chui, M., & Joshi, R. (2018). *Notes from the AI frontier: Modeling the impact of AI on the world economy*. McKinsey Global Institute Report.
- Chio, C., & Freeman, D. (2018). *Machine learning and security: Protecting systems with data and algorithms*. O'Reilly Media.
- Davenport, T. H., & Ronanki, R. (2020). Artificial Intelligence for the Real World. Harvard Business Review.
- Elakkiya, R., & Srinivasan, S. (2021). Artificial Intelligence for Disaster Management and Security: A Review. *Journal of AI and Security*, 6(2), 55-72.
- Higgins, D. (2021). The Role of Science Education in Developing Entrepreneurial Skills. *Journal of Entrepreneurship Education*, 34(3), 87-98.
- Holmes, W., Bialik, M., & Fadel, C. (2021). Artificial intelligence in education: Promises and implications for teaching and learning.
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson.
- OECD (2019). OECD Future of Education and Skills 2030: Conceptual learning framework.
- Sarker, I. H., Kayes, A. S. M., Badsha, S., Alqahtani, H., Watters, P., & Ng, A. (2020). Cybersecurity data science: An overview from machine learning perspective. *Journal of Big Data*, 7(1), 1-29.
- UN. (2023). Progress Towards Achieving the SDGs: Report on Global Sustainability. United Nations.
- UNESCO. (2021). Artificial Intelligence and the Future of Education: Transforming Learning for Sustainable Development. Retrieved from <https://www.unesco.org/en/ai-education>.
- Zhou, M., & Zhang, J. (2022). AI for Security: A Comprehensive Review of AI Applications in National Security and Public Safety. *Journal of AI Research*, 28(1), 111-128.
- Zubair, S., et al. (2022). Science Education and Entrepreneurship: Fostering Innovation in Developing Economies. *International Journal of Science Education*, 44(6), 887-902.