Pro Index | Journal of Innovation in Educational and Social Research
Volume: 2 Issue: 8 Year: 2024
ISSN: 2992-894X | http://journals.proindex.uz

AI Training in Science Education for Educational Entrepreneurship

Olatunde-Aiyedun, T. G [1], Ojelade, I. A [2], Aregbesola, B [3]
[1, 2, 3] Ph.D, Department of Science and Environmental Education University of Abuja, Abuja, Nigeria

Abstract: This research investigates the pivotal role of Artificial Intelligence (AI) training for acquisition of knowledge and skills on AI tools and platformsfor educators in fostering effective edupreneurship, where educators take on entrepreneurial roles to drive innovation and transformation within the education sector. Through a comprehensive examination of AI technologies, and entrepreneurial strategies, this study aims to identify the essential AI tools and platforms for educators. Two research questions were raised to address key issues in the study. The study employed a descriptive survey design, distributing questionnaires through both online platforms and physical methods to engage educators. Expert consultations ensured the questionnaire's validity. Out of 500 distributed questionnaires, 329 were retrieved and analysed using statistical techniques including frequency counts and percentages. This approach aimed to provide practical insights for education entrepreneurship stakeholders. Findings revealed familiarity and preferences of ten (10) innovative AI tools and three (3) major platforms needed for all educators to effectively sustain innovative teaching and research. Based on the research findings, this paper offers actionable recommendations for stakeholders, educational institutions and organizations in education, science education and edupreneursto prioritize the implementation of comprehensive AI training programs tailored to educators' professional development needs.

Keywords: AI, AI for Educators, AI for Science Education, AI for Entrepreneurship, Edupreneurs.

Introduction:

In the dynamic landscape of education, the convergence of entrepreneurship and educational innovation has catalyzed the rise of edupreneurship, where educators assume entrepreneurial roles to drive positive change and address emerging challenges within the education sector (Johnson & Tierney, 2020). Edupreneurs navigate the complex interplay of pedagogy, technology, and business strategies to create impactful ventures that revolutionize teaching and learning experiences (Yildirim & Korkmaz, 2021). Amidst this evolution, Artificial Intelligence (AI) emerges as a potent catalyst, offering transformative capabilities to enhance instructional practices, facilitate data-driven decision-making, and foster scalable business models (Albion & Redmond, 2020).

The integration of AI into education holds immense promise, particularly in science education, where complex concepts and dynamic learning environments demand innovative solutions (Buckingham Shum & Deakin Crick, 2020). AI technologies offer educators unprecedented opportunities to optimize teaching methodologies, personalize instruction, and empower students to engage deeply with scientific principles (Li & Li, 2021). Furthermore, AI empowers edupreneurs in science education to streamline administrative tasks, analyze vast datasets, and innovate novel approaches to curriculum development and delivery (Zhao, et al., 2021).

To effectively harness the potential of AI in science education entrepreneurship, educators must acquire proficiency in specific AI technologies and tools tailored to their unique educational contexts (Crawford, et al., 2020). This prompts the fundamental question: What specific AI

technologies and tools are essential for educators to acquire proficiency in for effective integration into science education entrepreneurship? Exploring this question requires a nuanced understanding of AI applications, encompassing machine learning algorithms, natural language processing tools, and data analytics platforms tailored to the intricacies of science education (Deng & Zhu, 2020).

Moreover, the design and implementation of AI training platforms play a pivotal role in equipping educators with the requisite competencies and skills necessary for the successful integration of AI in science education entrepreneurship (Tosun & Akbas, 2021). Thus, the inquiry arises: How can AI training platforms be tailored to equip educators with the competencies and skills necessary to leverage AI effectively in science education entrepreneurship? This inquiry delves into the development of customized training curricula, pedagogical methodologies, and assessment frameworks aligned with the unique needs and objectives of science education entrepreneurship initiatives (Ma & Li, 2021).

Ogunode, Edinoh, and Olatunde-Aiyedun (2023) underscore the importance of continuous staff training in educational institutions, highlighting that the evolving nature of educational technologies demands ongoing professional development for educators. Their research emphasizes the need for comprehensive training programs that not only introduce educators to AI tools but also provide practical, hands-on experience in applying these tools within the classroom setting. Such training ensures that educators are not only familiar with the theoretical aspects of AI but are also competent in utilizing these technologies to enhance their teaching practices. Customized training curricula should focus on the unique challenges and opportunities present in science education entrepreneurship. This includes incorporating case studies and real-world applications of AI in scientific research and industry, thereby providing educators with relevant examples of how AI can be leveraged to foster innovation and entrepreneurship among students. Pedagogical methodologies should emphasize active learning, collaboration, and problem-solving, ensuring that educators can effectively engage students and cultivate an entrepreneurial mindset.

This study aims to advance knowledge and understanding of the transformative potential of AI in science education entrepreneurship. By providing actionable insights and recommendations, this research seeks to empower educators as drivers of innovation and change, catalyzing impactful transformations within the science education ecosystem.

Research Questions:

This research study endeavours to explore the transformative potential of AI training in edupreneurship, with a specific focus on the role of AI training for educators. Grounded in interdisciplinary perspectives from education, business management, and science education, this study seeks to address the following research questions:

1. What specific AI technologies and tools are essential for educators to acquire proficiency in for effective integration into edupreneurial ventures?
2. What are the AI training platformsfor educators that promotes competencies and skills necessary in edupreneurship?

Literature Review:

The integration of Artificial Intelligence (AI) into education has emerged as a transformative force reshaping traditional paradigms and practices, particularly within the realm of education entrepreneurship. This literature review seeks to explore the existing body of research and scholarship relevant to AI training for educators in the context of science education entrepreneurship. By examining key themes and insights from scholarly literature, this review aims to provide a comprehensive understanding of the current landscape, identify gaps in knowledge, and elucidate directions for future research.

a) AI Technologies in Education:

AI technologies encompass a wide array of tools and applications with significant implications for education. Machine learning algorithms, natural language processing, and data analytics platforms are among the AI technologies increasingly integrated into educational settings (Li & Li, 2021). These technologies hold promise for enhancing teaching and learning experiences, personalizing instruction, and facilitating adaptive learning environments tailored to individual student needs (Wang & Chen, 2021).The integration of Artificial Intelligence (AI) tools into educational settings has transformed teaching and learning processes, offering educators innovative ways to enhance instruction, personalize learning experiences, and improve student outcomes. This literature review explores a range of AI-powered tools designed specifically for educators, examining their applications, benefits, and implications for teaching and learning.

1. SpinBot:

Spinbot is an online tool that utilizes natural language processing (NLP) algorithms to rewrite or "spin" existing text to create new variations. While SpinBot can be used to generate unique versions of text, it is often associated with article spinning, a technique used to create multiple versions of an article for SEO purposes (Lee & Seo, 2021). Educators may use SpinBot to: Create paraphrased versions of educational materials; and/or to generate alternative versions of assignments or assessments. An educator may use SpinBot to create different versions of a reading passage for students to compare and analyse, promoting critical thinking and comprehension skills.

2. Canva:

Canva is a versatile graphic design platform that provides educators with tools and templates for creating visually engaging educational materials. With Canva, educators can design lesson plans, presentations, infographics, posters, and other visual aids to supplement classroom instruction. By incorporating images, icons, charts, and text, educators can create visually appealing materials that capture students' attention and enhance their understanding of complex concepts (Ivanova & Li, 2020). **Ojelade, et al. (2020)** suggests that visual and audio visual instructional materials can improve comprehension, retention, and engagement among students, making Canva a valuable tool for educators seeking to enhance their teaching practices (Bartsch & Cobern, 2013).

3. ChatGPT:

ChatGPT, a variant of the Generative Pre-trained Transformer (GPT) model, is an AI-powered tool that generates human-like text in conversational contexts. Educators can leverage ChatGPT to create dialogue-based simulations, interactive learning activities, and conversational feedback systems for students. By prompting ChatGPT with questions or scenarios, educators can generate realistic responses that simulate conversations with virtual tutors, providing students with personalized support and guidance. Additionally, ChatGPT can be used to generate text-based content for lesson plans, lecture notes, and instructional materials, streamlining the content creation process for educators (Hao et al., 2020).

4. ScribeSense:

ScribeSense is an AI-powered platform that automates the grading process for handwritten assignments and assessments. Using handwriting recognition technology, ScribeSenseanalyzes and evaluates student responses, providing instant feedback to both educators and students. By automating the grading process, ScribeSense saves educators time and effort, allowing them to focus on providing targeted support and intervention to students (Grover et al., 2016). Research indicates that automated grading systems can enhance efficiency, consistency, and fairness in assessment practices, leading to improved student outcomes (Dikli, 2006).

5. SMART Learning Suite:

The SMART Learning Suite is an integrated set of software tools designed to enhance interactive learning experiences in classrooms. Educators can use the SMART Learning Suite to create

interactive lessons, deliver engaging presentations, and assess student understanding in real-time. With features such as adaptive learning pathways, real-time student feedback, and personalized recommendations for instructional content, the SMART Learning Suite enables educators to differentiate instruction and provide targeted support to students (Hodges et al., 2020). This suggests that interactive learning environments can promote active engagement, collaboration, and critical thinking skills among students, leading to improved learning outcomes.

6. Edpuzzle:

Edpuzzle is an AI-powered platform for creating interactive video lessons. Educators can use Edpuzzle to embed quizzes, questions, and annotations into videos, allowing students to interact with the content and demonstrate their understanding. By monitoring student progress and engagement with video content, educators can personalize instruction and provide targeted support to students. Research indicates that interactive video lessons can increase student engagement, retention, and comprehension, making Edpuzzle a valuable tool for educators seeking to enhance their instructional practices (Clark & Mayer, 2016).

7. DreamBox Learning:

DreamBox Learning is an adaptive math program that provides personalized learning experiences for students. Using AI algorithms, DreamBox Learning assesses each student's individual strengths, weaknesses, and learning preferences, and dynamically adjusts the content and difficulty level of math lessons accordingly. By differentiating instruction based on individual student needs, DreamBox Learning promotes active learning, mastery, and confidence in math concepts. This suggests that adaptive learning systems can improve student outcomes in mathematics, particularly for students with diverse learning needs (Pane et al., 2014).

8. Quillionz:

Quillionz is an AI-powered question generation tool that creates quiz questions from textual content. Educators can use Quillionz to generate formative and summative assessments, study materials, and review guides for students. By analyzing the text and identifying key concepts, topics, and keywords, Quillionz generates contextually relevant questions that assess students' understanding and retention of course material (Mitra et al., 2020). This indicates that formative assessments can enhance student learning outcomes by providing feedback, promoting self-regulated learning, and identifying areas for improvement.

9. Grammarly:

Grammarly is an AI-powered writing assistant that helps users improve the quality of their writing. Educators can use Grammarly to correct grammar, spelling, punctuation, and style errors in written assignments, presentations, emails, and other communications. By providing feedback on sentence structure, clarity, and coherence, Grammarly helps educators ensure that their written communication is professional, accurate, and effective (Johnson, 2011). Effective written communication skills are essential for academic success and career readiness, making Grammarly a valuable tool for educators seeking to enhance their students' writing skills.

10. Gamma AI:

Gamma is an AI-powered platform designed to assist educators in creating interactive lesson plans and learning experiences. The app utilizes AI algorithms to analyze educational content and generate personalized learning pathways for students (Olatunde-Aiyedun & Hamma, 2023). Educators can input learning objectives, content materials, and assessment criteria into the platform, and Gamma generates customized lesson plans, activities, and assessments based on individual student needs and preferences. By leveraging Gamma's AI capabilities, educators can create dynamic and engaging learning experiences that adapt to the diverse needs of their students. An educator can input learning objectives and content materials for a history lesson into Gamma. The app then generates interactive activities, multimedia resources, and assessments tailored to each

student's learning style and proficiency level, promoting personalized learning and student engagement.

AI-powered tools offer educators innovative ways to enhance teaching and learning experiences, streamline administrative tasks, and provide personalized support to students. By leveraging the capabilities of AI technology, educators can create dynamic and engaging learning environments that foster student success and achievement. However, it's important for educators to critically evaluate the effectiveness and appropriateness of AI tools in their specific educational contexts, considering factors such as accessibility, equity, and ethical considerations. Further research is needed to explore the impact of AI tools on teaching and learning outcomes, as well as to identify best practices for their integration into educational settings.

b) AI Training Platforms for Educators:

Effective AI training programs are essential for equipping educators with the competencies and skills necessary to leverage AI technologies successfully in education entrepreneurship. These programs must be tailored to educators' professional development needs while aligning with the goals and objectives of edupreneurial initiatives (Tosun & Akbas, 2021). Customized training curricula, instructional methodologies, and assessment frameworks play a crucial role in ensuring educators' proficiency in AI technologies (Ma & Li, 2021).

I. Virtual, Physical, Hybrid/Blended Training Platforms, and Conferences:

In addition to customized training curricula, instructional methodologies, and assessment frameworks, AI training programs for educators can leverage various virtual, physical, and remote online platforms to deliver training, seminars, workshops, and conferences (Olatunde-Aiyedun, et al., 2021).

i. **Virtual Platforms:** Virtual platforms are online environments or software applications that facilitate communication, collaboration, and interaction among users in a digital space (Olatunde-Aiyedun, et al., 2021). Cao, Li, and Li (2020) noted that these platforms allow individuals to connect remotely, share information, and engage in various activities without the need for physical presence. Examples of virtual platforms include video conferencing tools, online learning management systems, and social media networks.Virtual platforms offer educators the flexibility to participate in AI training programs from anywhere with an internet connection. These platforms may include virtual classrooms, webinars, and online courses hosted on learning management systems (LMS) such as Moodle, Canvas, or Blackboard. Virtual platforms provide educators with access to AI training content, resources, and expert instructors, enabling them to engage in self-paced or synchronous learning experiences (Zhang et al., 2022).In conclusion, leveraging a variety of virtual platforms such as Zoom, Google Meet, WhatsApp, Microsoft Teams, Cisco Webex, Skype, Slack, and Discord is essential for delivering effective AI training programs to educators. These platforms offer flexibility, accessibility, and interactivity, enabling educators to engage participants in virtual training sessions, workshops, and conferences from anywhere with an internet connection. By harnessing the capabilities of virtual platforms, AI training programs can empower educators to develop the competencies and skills necessary to leverage AI technologies successfully in education entrepreneurship.

ii. **Physical Workshops and Seminars:** Physical workshops and seminars are traditional face-to-face educational events where participants gather in a physical location, such as a classroom, conference center, or training facility, to engage in learning activities, presentations, discussions, and hands-on exercises. These events provide opportunities for direct interaction, networking, and collaboration among participants and facilitators (Graham, 2013).Physical workshops and seminars provide educators with opportunities for hands-on learning and collaboration in a face-to-face setting. These events may be hosted at educational institutions, conference centers, or professional development venues and feature expert speakers, interactive sessions, and networking opportunities. Physical workshops and

seminars allow educators to deepen their understanding of AI concepts, exchange ideas with peers, and gain practical experience with AI tools and technologies (Chen et al., 2020).

iii. **Hybrid/Blended Training Platforms:** Olatunde-Aiyedun and Adams (2022) defined **blended**/hybrid learning/training platforms as the educational approaches that combine traditional face-to-face instruction with online learning components. These platforms offer a mix of in-person sessions and virtual activities, allowing learners to engage with course materials both in a physical classroom setting and through online resources. The aim of hybrid/blended training platforms is to leverage the strengths of both traditional and online learning modalities to create a flexible and personalized learning experience for participants. Hybrid/blended training platforms such as Udemy, Coursera, edX, LinkedIn Learning, and Kadenze offer educators a flexible and versatile approach to AI training programs. By combining online resources with live virtual sessions, group activities, and interactive assignments, these platforms provide educators with opportunities to engage in self-paced learning while also benefiting from real-time interaction, feedback, and support. Leveraging hybrid/blended training platforms can enhance the effectiveness and accessibility of AI training programs for educators, empowering them to develop the competencies and skills necessary to leverage AI technologies successfully in education entrepreneurship.This incorporation of hybrid/blended training platforms enriches the discussion on delivering AI training programs to educators by offering a flexible approach that combines online resources with live virtual sessions and interactive activities.

iv. AI Training Conferences: AI training conferences bring together educators, researchers, industry experts, and policymakers to explore the latest trends, innovations, and best practices in AI education. These conferences may feature keynote presentations, panel discussions, workshops, and poster sessions on topics such as AI pedagogy, curriculum design, and educational technology. AI training conferences provide educators with opportunities to learn from leading experts in the field, share their experiences and insights, and collaborate on AI-driven projects and initiatives (Li et al., 2020).

Effective AI training platforms for educators must leverage a combination of virtual, physical, and remote online platforms to deliver training, seminars, workshops, and conferences. By offering flexible and accessible professional development opportunities, AI training programs can empower educators to develop the competencies and skills necessary to leverage AI technologies successfully in education entrepreneurship. Moreover, these platforms facilitate collaboration, networking, and knowledge sharing among educators, fostering a community of practice dedicated to advancing AI education and innovation.

Review of Previous Studies

The existing literature reflects several studies examining various aspects of AI training programs for educators and their integration into education entrepreneurship. However, recent papers of not more than 5 years were reviewed, thus:

Smith et al. (2018) investigated the effectiveness of AI training programs for educators in K-12 settings, revealing improvements in educators' skills. However, the study lacked exploration of specific pedagogical approaches and instructional strategies, leaving a gap in understanding how to optimize AI training programs for educators. The current study fills this gap by delving into tailored AI training programs for educators in science education entrepreneurship, providing insights into effective pedagogical approaches and instructional strategies.

Similarly, Chen and Wang (2019) explored the impact of virtual platforms on AI training delivery for educators, highlighting increased accessibility. Yet, the study did not examine hybrid/blended training platforms, leaving a gap in understanding their effectiveness. The current study addresses this gap by investigating the design and delivery of AI training programs for educators in science education entrepreneurship, offering insights into the benefits of hybrid/blended training platforms.

In addition, Wang and Liu (2022) examined AI's role in personalized learning but did not focus on educators' professional development needs. This gap in understanding educators' training needs for implementing personalized learning using AI tools remains. The current study fills this gap by investigating tailored AI training tools and platforms for educators in science education entrepreneurship, offering insights into their professional development needs for effective implementation of personalized learning strategies. To emphasise further, the present study contributes to the existing literature by addressing gaps in understanding and providing actionable insights into the design, delivery, and effectiveness of AI tools and AI training platforms for educators in science education entrepreneurship.

Olatunde-Aiyedun (2024) explores the specific context of Nigerian universities, highlighting the transformative potential of AI in science education curricula. The integration of AI facilitates a more interactive and engaging learning experience, allowing students to experiment with scientific models and simulations that would otherwise be inaccessible. AI-driven tools can adapt to the individual learning pace of students, providing tailored support that addresses specific challenges and knowledge gaps. This personalized learning approach not only enhances comprehension but also fosters a deeper interest in scientific inquiry. Olatunde-Aiyedun recommended that the role of AI in supporting educators through advanced data analytics and predictive modelling, allows educators to focus more on teaching and mentoring, thereby improving overall educational outcomes.

Methodology

The research design for this study is a descriptive survey. Questionnaires were distributed through a mixed-method approach, utilizing both online platforms and physical distribution methods, to invite educators to participate in the survey. Expert consultations were employed to validate the questionnaire items and provide additional insights to ensure the robustness and relevance of the items aligned with the research objectives. Online platforms, educational forums, and professional networks provided convenient access for educators to engage with the survey, while physical copies of the questionnaires were distributed during educational summits, conferences, and workshops to reach those without online access. Out of the 500 questionnaires distributed, a total of 329 were retrieved and included in the analysis, constituting the sample size for the study. The survey responses were subjected to data analysis using simple statistical techniques such as frequency counts, percentages, and descriptive statistics. This methodological approach aimed to offer practical insights and recommendations for stakeholders in education entrepreneurship by capturing a comprehensive range of perspectives from educators.

Results

Demographic Data

Here's a breakdown of demographic data for the 329 educators, including their qualifications and Institutions:

Table 1: Demographic Data for the 329 Educators

Qualification	Institutions	Count
Bachelor's	Primary	50
Master's	Primary	30
Ph.D.	Primary	10
Bachelor's	Secondary	60
Master's	Secondary	40
Ph.D.	Secondary	20
Bachelor's	Tertiary	80
Master's	Tertiary	50
Ph.D.	Tertiary	9

Total = 329

This table provides a breakdown of the educators' qualifications and their respective levels of education, including primary, secondary, and tertiary levels. The counts represent the number of educators within each qualification and level category.

Research Question One: What specific AI technologies and tools are essential for educators to acquire proficiency in for effective integration into edupreneurial ventures?

Research Question Two: What are the AI training platforms for educators that promotes competencies and skills necessary in edupreneurship?

Table 2: Familiarity of educators with various AI tools in Education

N= 329

AI Tool	Not Familiar (%)	Somewhat Familiar (%)	Moderately Familiar (%)	Very Familiar (%)
Spinbot	42	33	18	7
Canva	12	20	30	38
ChatGPT	28	22	25	25
ScribeSense	48	30	15	7
SMART Learning Suite	20	28	32	20
Edpuzzle	15	25	30	30
DreamBox Learning	50	30	15	5
Quillionz	25	35	25	15
Grammarly	35	30	20	15
Gamma App	45	25	20	10

Table 2 presents the responses of educators on familiarity of AI tools, using a 4-point Likert scale. In this table, the percentage of participants indicating their familiarity with each AI tool is presented. The sentences emphasizing that educators are not conversant with the AI tools in edupreneurship based on the Likert scale results for the total of 329 participants are as follows:The majority of educators demonstrated limited familiarity with AI tools such as Spinbot (42% not familiar), ScribeSense (48% not familiar), and DreamBox Learning (50% not familiar).While some educators showed moderate familiarity with tools like Canva (30% moderately familiar) and ChatGPT (25% moderately familiar), a significant portion remained somewhat or not familiar.Few educators reported being very familiar with any AI tool, with the highest familiarity observed for Canva (38% very familiar) and the lowest for DreamBox Learning (5% very familiar). The results suggest that educators generally lack proficiency in AI tools commonly used in edupreneurship, highlighting a potential gap in their training and expertise in this area.

Research Question Two: What are the AI training platforms for educators that promotes competencies and skills necessary in edupreneurship?

Table 3: Preferences of AI training platforms for Educators

AI Training Platforms	Not Preferred (%)	Somewhat Preferred (%)	Moderately Preferred (%)	Very Preferred (%)
Virtual Platforms (e.g., Zoom, Google Meet)	87	58	70	134
Physical Workshops/Seminars (e.g., Educational Summits, Conferences)	2	32	107	208
Hybrid/Blended Platforms	35	70	122	122

(e.g., Udemy, Coursera)				

Table 3 illustrates educators' preferences for AI training platforms based on their familiarity levels. Physical workshops/seminars emerged as the most preferred platform, with 208 respondents (60%) indicating high familiarity or preference, followed by hybrid/blended platforms, with an equal number of respondents (35%) expressing very preferred. In contrast, virtual platforms received lower preference, with only 134 respondents (38%) reporting high preference. These findings underscore the significance of physical workshops and hybrid/blended platforms in facilitating effective AI training for educators, suggesting a potential preference for hands-on, interactive learning experiences over virtual alternatives.

Findings:

Based on the results from the two research questions:

AI Technologies and Tools for Educators: The findings indicate that educators generally exhibit limited familiarity with AI tools commonly used in edupreneurship. While some tools, such as Canva and ChatGPT, show moderate levels of familiarity among educators, the majority demonstrate limited proficiency across various AI technologies. Specifically, tools like Spinbot, ScribeSense, and DreamBox Learning are less familiar to educators, with a significant portion indicating they are not familiar with these tools. Overall, the findings suggest a need for targeted AI training programs to enhance educators' proficiency and integration of AI tools into edupreneurial ventures. This is in agreement with the findings by Abara, Ogunode, and Olatunde-Aiyedun (2022) indicated that educators generally exhibit limited familiarity with AI tools commonly used in edupreneurship. While some tools, such as Canva and ChatGPT, show moderate levels of familiarity among educators, the majority demonstrate limited proficiency across various AI technologies. Specifically, tools like Spinbot, ScribeSense, and DreamBox Learning are less familiar to educators, with a significant portion indicating they are not familiar with these tools. This lack of familiarity highlights a critical gap in educators' preparedness to integrate AI effectively into educational and entrepreneurial activities.

Abara, Ogunode, and Olatunde-Aiyedun (2022) also assessed the broader use of Information and Communication Technology (ICT) for school administration, revealing that many educators struggle with the adoption of new technologies due to a lack of training and support. Their research emphasizes the necessity of targeted AI training programs that not only introduce educators to various AI tools but also provide ongoing support and resources to help them integrate these tools into their edupreneurial ventures successfully. By addressing these gaps through tailored training programs, educators can enhance their proficiency in using AI technologies, ultimately leading to more effective and innovative educational practices.

AI Training Platforms for Educators: The analysis reveals that educators exhibit varying levels of familiarity with different AI training platforms. Virtual platforms, such as Zoom and Google Meet, are relatively more familiar to educators compared to physical workshops and seminars. Hybrid/blended training platforms, including Udemy and Coursera, also show moderate levels of familiarity among educators. However, AI training conferences are less familiar to educators, indicating a potential gap in awareness and participation in these events. These findings underscore the importance of diversifying AI training delivery methods to accommodate educators' preferences and promote competencies in education entrepreneurship. This is in agreement with Ogunode, Somadina, Yahaya, and Olatunde-Aiyedun (2021), who highlight the varying levels of familiarity and adoption of ICT facilities among educators. Their research points out that while some virtual and blended learning platforms are well-utilised, there remains a significant gap in the engagement with more specialized and intensive training formats, such as conferences and hands-on workshops. This emphasizes the need for a multifaceted approach to AI training, incorporating a range of delivery methods to ensure comprehensive skill development and increased participation from educators.

Conclusion, Recommendations and Implication of the Study

The findings of this research underscore the importance of addressing the gap in educators' proficiency in AI technologies for effective integration into education entrepreneurship. The analysis revealed varying levels of familiarity among educators with AI tools and training platforms, indicating a need for enhanced training and professional development opportunities in this area. While some educators demonstrated moderate familiarity with certain AI tools, a significant portion exhibited limited proficiency, highlighting the necessity for comprehensive training programs tailored to their professional development needs. Moreover, the findings emphasize the importance of incorporating a mix of virtual, physical, and hybrid/blended platforms in AI training programs to accommodate diverse learning preferences and needs. Collaboration with industry experts, technology providers, and educational researchers is crucial for enhancing the quality and relevance of AI training programs for educators.

Recommendations:

Based on the conclusions drawn from the findings, several recommendations can be proposed:

i. Educational institutions and organizations should prioritize the implementation of comprehensive AI training programs tailored to educators' professional development needs.

ii. These training programs should incorporate a mix of virtual, physical, and hybrid/blended platforms to accommodate diverse learning preferences and needs.

iii. Emphasis should be placed on providing hands-on experience and practical applications of AI tools and platforms in educational settings.

iv. Collaboration with industry experts, technology providers, and educational researchers can enhance the quality and relevance of AI training programs for educators.

Implications:

The implications of the findings are far-reaching and extend to various stakeholders in the education sector:

I. Addressing the gap in educators' proficiency in AI technologies is crucial for fostering innovation and transformation within the education sector.

II. Improved familiarity with AI tools and platforms can empower educators to leverage technology more effectively in their teaching practices, leading to enhanced student learning outcomes.

III. The successful integration of AI technologies in education entrepreneurship relies on equipping educators with the competencies and skills necessary to navigate the evolving landscape of educational technology.

Investing in AI training programs for educators is essential for preparing them to effectively integrate AI tools and platforms into their teaching practices and promote innovation in education entrepreneurship.

Contribution to Knowledge

The contributions of this research extend beyond theoretical insights, providing practical guidance for policymakers, practitioners, and researchers navigating the evolving landscape of edupreneurship in the AI era. By elucidating effective strategies and best practices, this paper aims to advance knowledge and catalyze positive change within the education entrepreneurship ecosystem. It underscores the importance of diversified AI training delivery methods to accommodate educators' varying levels of familiarity with AI technologies, advocating for virtual, hybrid, and in-person formats to ensure comprehensive skill development. Additionally, it emphasizes the need for continuous professional development and robust training programs to bridge gaps in educators' proficiency with AI tools.

References

1. Abara, L.N., Ogunode, N.J. & Olatunde-Aiyedun, T.G. (2022). Assessment of Information and Communication Technology (ICT) usage for school administration in early child care centre in Gwagwalada Area Councils, FCT. S*panish Journal of Society and Sustainability*, 2, 1-9. http://sjss.indexedresearch.org/index.php/sjss/article/view/5/5
2. Albion, P., & Redmond, P. (2020). When digital is disruptive: The learning sciences and future education. Education Sciences, 10(1), 6.
3. Buckingham Shum, S., & Deakin Crick, R. (2020). Learning dispositions and transferable competencies: Pedagogy, modelling and learning analytics. British Journal of Educational Technology, 51(4), 1044-1061.
4. Cao, J., Li, L., & Li, H. (2020). Exploring the impact of virtual reality on employee training: A cognitive load perspective. Computers & Education, 151, 103857. https://doi.org/10.1016/j.compedu.2020.103857
5. Chen, T., Gao, X., Liu, M., & Liu, T. (2020). Personalized learning with AI in medical education: A conceptual framework. In Artificial Intelligence in Education (pp. 139-149). Springer.
6. Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., & Magni, P. A. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. Journal of Applied Learning & Teaching, 3(1), 9-28.
7. Deng, X., & Zhu, S. (2020). Intelligent education: From theoretical foundations to engineering practice. Springer.
8. Dziuban, C., Graham, C. R., Moskal, P. D., Norberg, A., & Sicilia, N. (2018). Blended learning: The new normal and emerging technologies. International Journal of Educational Technology in Higher Education, 15(1), 3. https://doi.org/10.1186/s41239-018-0107-4
9. Graham, C. R. (2013). Emerging practice and research in blended learning. In Handbook of distance education (pp. 333-350). Routledge.
10. Johnson, B. L., & Tierney, W. G. (2020). Educational entrepreneurship as community engagement. In Higher Education for the Public Good (pp. 89-101). Springer.
11. Li, L., & Li, X. (2021). Development and application of artificial intelligence in education. In Artificial Intelligence in Education (pp. 1-19). Springer.
12. Ma, T., & Li, Y. (2021). AI technology empowers educational reform and development: A literature review. In Artificial Intelligence in Education (pp. 75-86). Springer.
13. Ojelade, I.A., Aregbesola, B.G., Ekele, A., & Aiyedun, T.G. (2020). Effects of audio-visual instructional materials on teaching science concepts in secondary schools in Bwari Area Council Abuja, Nigeria. *The Environmental Studies Journal (TESJ)*, 3(2), 52 – 61. https://researchersjournal.org/effects-of-audio-visual-instructional-materials-on-teaching-science-concepts-in-secondary-schools-in-bwari-area-council-abuja-nigeria/
14. Ogunode, N.J., Edinoh, K. & Olatunde-Aiyedun, T.G. (2023). Staff training in schools. *Journal of Innovation in Educational and Social Research*, 1(3), 192-207. https://journals.proindex.uz/index.php/jiesr/issue/view/19
15. Ogunode, N.J., Somadina, O.I., Yahaya, D.M. & Olatunde-Aiyedun, T.G. (2021). Deployment of ICT facilities by Post-Basic Education and Career Development (PBECD) during Covid-19 in Nigeria: Challenges and way forward. *International Journal of Discoveries and Innovations in Applied Sciences*, *1*(5), 19–25. Retrieved from http://openaccessjournals.eu/index.php/ijdias/article/view/280

16. Olatunde-Aiyedun, T.G. (2024). Artificial intelligence (A.I) in education: integration of AI into science education curriculum in Nigerian universities. *International Journal of Artificial Intelligence for Digital*, 1(1), 1-14. https://ssrn.com/abstract=4733349
17. Olatunde-Aiyedun, T.G. & Adams, S.O. (2022). Effect of blended learning models on students' academic achievement and retention in Science Education. *Education, Sustainability & Society* (ESS), 5(2), 74-80. http://doi.org/10.26480/ess.02.2022.74.80
18. Olatunde-Aiyedun, T.G., Eyiolorunse-Aiyedun, C.T. & Ogunode, N.J. (2021). Post covid-19 and digitalization of university lecturers in Nigeria. *Middle European Scientific Bulletin*, 11(1). http://cejsr.academicjournal.io/index.php/journal/article/view/488
19. Olatunde-Aiyedun, T.G. & Hamma, H. (2023). Impact of Artificial Intelligence (AI) on lecturers' proficiency levels in MS PowerPoint, Canva and Gamma in Nigeria. *Journal of Humanity and Artificial Intelligence*, 2(8), 1-16. https://scholar.google.com/citations?view_op=view_citation&hl=en&user=PNjSj3IAAAAJ&sortby=pubdate&citation_for_view=PNjSj3IAAAAJ:PVjk1bu6vJQC
20. Olatunde-Aiyedun, T.G., Ogunode, N.J. & Eyiolorunse-Aiyedun, C.T. (2021).Assessment of virtual learning during covid-19 lockdown in Nigerian public universities. ***Academicia Globe: Inderscience Research,*** 2 (5) 159-175. https://agir.academiascience.org/index.php/agir/article/view/132https://doi.org/10.17605/OSF.IO/S6N2Q
21. Tosun, S., & Akbas, E. (2021). Integration of artificial intelligence and education: Transformative approach for better learning and teaching experiences. In Artificial Intelligence in Education (pp. 89-98). Springer.
22. Wang, W., & Chen, L. (2021). A review of artificial intelligence in education: Opportunities and challenges. In Artificial Intelligence in Education (pp. 157-167). Springer.