

ARTIFICIAL INTELEGENCE AS A TOOL FOR EFFECTIVE TEACHING AND LEARNING OF BUSINESS EDUCATIONCOURSES

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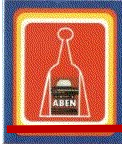
Abstract

This paper discussed the link of using artificial intelligence tools for effective teaching and learning of business education courses. The paper further discussed the meaning of artificial intelligence , types of artificial intelligence, artificial intelligence in education for learners, artificial intelligence in education for teachers, artificial intelligence tools for effective teaching and learning of business education courses and later concluded that Artificial intelligence as a tool for effective teaching and learning of business education courses cannot be over emphasized, it create succor in completing tasks that consume instructor's time at a faster pace, identifying students' preferences and learning styles to generate personalized learning plans, and providing them with timely and direct feedback or assisting teachers in their data-related decisions or works. The paper suggested that the government should ensure to provide enabling environment for effective use of artificial intelligence tools for effective teaching and learning of business education courses, business educators should embrace the use of artificial intelligence tools in teaching business education courses to reduce stress of attending to the needs of the students among others

Introduction

Online and blended learning are now prevalent in modern communities and emerging economies as they strive to integrate these methods into the educational system. Artificial intelligence (AI) is the simulation of human intelligence in machines that are programmed to think and act like humans. Learning, reasoning, problem-solving, perception, and language comprehension are all examples of cognitive abilities. Artificial Intelligence is a method of making a computer, a computer-controlled robot, or a software think intelligently like the human mind. AI is accomplished by studying the patterns of the human brain and by analyzing the cognitive process. The outcome of these studies develops intelligent software and systems. Artificial intelligence (AI) is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience.

Tan (2020) underlines that the teacher exerts a triple role, being a content expert and creator, a knowledge spreader, and "an ethical-spiritual guide" with wisdom. The students should be able to chase trends and not just stay current with the events and environment (Elhajjar, Karam and Borna, 2021). Hence, the demand for innovative teachers embracing change, integrating new materials, and enabling student-AI interactions in education is increasing. The



demand for adaptive digital learning with AI support has surged in the past decade, driven by challenges like the Covid-19 pandemic and social conflicts in contemporary societies (Matzavela and Alepis, 2021). When discussing artificial intelligence (AI), it is common to distinguish between two broad categories: weak AI and strong AI. Let's explore the characteristics of each type,

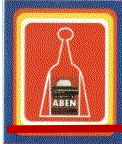
Weak AI refers to AI systems that are designed to perform specific tasks and are limited to those tasks only. These AI systems excel at their designated functions but lack general intelligence. Examples of weak AI include voice assistants like Siri or Alexa, recommendation algorithms, and image recognition systems. Weak AI operates within predefined boundaries and cannot generalize beyond their specialized domain while Strong AI, also known as general AI, refers to systems that possess human-level intelligence or even surpass human intelligence across a wide range of tasks. Strong AI would be capable of understanding, reasoning, learning, and applying knowledge to solve complex problems in a manner similar to human cognition. However, the development of strong AI is still largely theoretical and has not been achieved to date. AIED provides feasible solutions to complex societal problems, enabling students to engage closely with global challenges and develop real-life problem-solving skills South worth et al., (2023). In envisioning future jobs and human resources specialists' requirements, teachers must equip students with a proficiency that makes them adaptable to challenges. Teachers significantly contribute to society by educating generations of upcoming students that will become future entrepreneurs. AI technology in education is expected to grow significantly in the coming decades, presenting new opportunities and challenges Ouyang & Jiao, (2021); Zhang & Aslan, (2021); Khosravi, (2022). Researchers, policymakers, and practitioners are integrating AIED to enhance teaching, personalized learning, assessments, and administrative services Zhang & Aslan, (2021); Chiu et al., (2023).

Types of Artificial Intelligence

Purely Reactive: These machines do not have any memory or data to work with, specializing in just one field of work. For example, in a chess game, the machine observes the moves and makes the best possible decision to win. **Limited Memory:** These machines collect previous data and continue adding it to their memory. They have enough memory or experience to make proper decisions, but memory is minimal. For example, this machine can suggest a restaurant based on the location data that has been gathered. **Theory of Mind:** This kind of AI can understand thoughts and emotions, as well as interact socially. However, a machine based on this type is yet to be built. **Self-Aware:** Self-aware machines are the future generation of these new technologies. They will be intelligent, sentient, and conscious. AI represents progress in education, offering benefits on multiple levels, and stimulates the evolution of teaching and learning through technologies like chat bots, robots, automated assessment, digitized artifacts, and intelligent tutoring systems, despite occasional organizational challenges (Chiu et al., 2023).

Artificial intelligence in education for learners

AI systems in education significantly enhance learners' involvement and performance (Zhang and Aslan, 2021). Chiu et al. (2023) identified essential roles for learners: competency-based task assignments, learner-machine discussions, feedback, and adaptive digital environments. Zhang and Aslan (2021) added other AI facilitations, including engagement, enriched learning resources, and intellectual stimuli. South worth et al. (2023) highlights AIED's benefits, fostering technical skills, creativity, critical thinking, and problem-solving abilities for students. AIED personalizes learning experiences and communication to cater for individual needs and abilities, enhancing efficiency (Hopcan et al., 2022; Southworth et al., 2023). Customized learning materials are tailored based on students' evaluations, addressing their



strengths and weaknesses (Hopcan et al., 2022). Artificial Intelligence emphasizes three cognitive skills of learning, reasoning, and self-correction, skills that the human brain possesses to one degree or another. We define these in the context of AI as: Learning: The acquisition of information and the rules needed to use that information. Reasoning: Using the information rules to reach definite or approximate conclusions. Self-Correction: The process of continually fine-tuning AI algorithms and ensure that they offer the most accurate results they can. However, researchers and programmers have extended and elaborated the goals of AI to the following: Logical Reasoning, AI programs enable computers to perform sophisticated tasks. On February 10, 1996, IBM's Deep Blue computer won a game of chess against a former world champion, Garry Kasparov. Knowledge Representation, Smalltalk is an object-oriented, dynamically typed, reflective programming language that was created to underpin the "new world" of computing exemplified by "human-computer symbiosis."

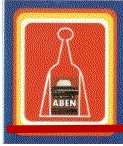
Planning and Navigation, The process of enabling a computer to get from point A to point B. A prime example of this is Google's self-driving Toyota Prius. Natural Language Processing set up computers that can understand and process language. Perception, Use computers to interact with the world through sight, hearing, touch, and smell. Emergent Intelligence, Intelligence that is not explicitly programmed, but emerges from the rest of the specific AI features. The vision for this goal is to have machines exhibit emotional intelligence and moral reasoning.

Li and Wang (2023) proposed using advanced technology to create a comfortable communication environment, fostering learner networks with increased information accessibility for future generations. Adapting learning experiences sustains student progress and engagement in virtual environments, promoting skill development (Southworth et al., 2023). Interactivity and participation substantially increase among students and teachers. Khosravi et al. (2022) emphasized the significance of AI in various learning interfaces. For remote learners, AI offers a crucial advantage through simulation cases on complex life topics challenging to address in traditional settings (e.g., welfare system, losses, and violence) (Asakura et al., 2020). Artificial intelligence has its pluses and minuses, much like any other concept or innovation. Here's a quick rundown of some pros and cons. Pros include, It reduces human error, It never sleeps, so it's available at every time of the day, It never gets bored, so it easily handles repetitive tasks, It's fast while Cons are, It's costly to implement, It can't duplicate human creativity, It will definitely replace some jobs, leading to unemployment, People can become overly reliant on it.

Ouyang and Jiao (2021) identified three AIEd paradigms: "AI-direct, learner-as-recipient", where AI leads learning with a defined pathway for the learner, "AI-supported, learner-as-collaborator", where AI optimizes interaction among learners, information, and technology, and "AI-empowered, learner-as-leader", where AI enhances learners' intelligence through a complex system. Cope, Kalantzis and Sears (2021) acknowledged AI's intrinsic limitations, cautioning against reducing students' results to simple numbers without human thought and implications beyond AI's cognitive processes and calculations.

Artificial intelligence in education for teachers

Crompton, Jones and Burke (2022) emphasized that AIEd builds upon previous learning theories, facilitating teacher adoption of educational tools and integrating best practices to enhance learning. AIEd benefits teachers and the teaching process through tailored content for individual learners, at-risk or gifted students, learning predictive models, personalized educational resources, improved classroom management, enhanced teaching across various subjects, academic progress facilitation, and qualified development in pedagogical skills, human behavior, and interactions (Zhang and Aslan, 2021; Chiu et al., 2023).

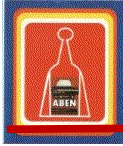


AI unlocks new research potential in universities and colleges by expanding experimental and investigative activities and disseminating study results (Li and Wang, 2023). Teachers can focus on complex tasks as AI provides student support and answers (Southworth et al., 2023). Artificial intelligence (AI) has a wide range of applications across various industries and domains. Here are some notable applications of **AI: Natural Language Processing (NLP)**, AI is used in NLP to analyze and understand human language. It powers applications such as speech recognition, machine translation, sentiment analysis, and virtual assistants like Siri and Alexa. **Image and Video Analysis. AI techniques:** including computer vision, enable the analysis and interpretation of images and videos. This finds application in facial recognition, object detection and tracking, content moderation, medical imaging, and autonomous vehicles. **Robotics and Automation**, AI plays a crucial role in robotics and automation systems. Robots equipped with AI algorithms can perform complex tasks in manufacturing, healthcare, logistics, and exploration. They can adapt to changing environments, learn from experience, and collaborate with humans. **Recommendation Systems**, AI-powered recommendation systems are used in e-commerce, streaming platforms, and social media to personalize user experiences. They analyze user preferences, behavior, and historical data to suggest relevant products, movies, music, or content. **Financial Services**, AI is extensively used in the finance industry for fraud detection, algorithmic trading, credit scoring, and risk assessment. Machine learning models can analyze vast amounts of financial data to identify patterns and make predictions. **Healthcare**, AI applications in healthcare include disease diagnosis, medical imaging analysis, drug discovery, personalized medicine, and patient monitoring. AI can assist in identifying patterns in medical data and provide insights for better diagnosis and treatment. **Virtual Assistants and Chat bots**, AI-powered virtual assistants and chat bots interact with users, understand their queries, and provide relevant information or perform tasks. They are used in customer support, information retrieval, and personalized assistance. **Gaming**, AI algorithms are employed in gaming for creating realistic virtual characters, opponent behavior, and intelligent decision-making. AI is also used to optimize game graphics, physics simulations, and game testing. **Smart Homes and IoT**, AI enables the development of smart home systems that can automate tasks, control devices, and learn from user preferences. AI can enhance the functionality and efficiency of Internet of Things (IoT) devices and networks. **Cybersecurity**, AI helps in detecting and preventing cyber threats by analyzing network traffic, identifying anomalies, and predicting potential attacks. It can enhance the security of systems and data through advanced threat detection and response mechanisms.

Khosravi (2022) advocates integrating explainable AI (XAI) in education, prioritizing human-centered design of educational tools, assessing XAI implementation, and enhancing AIED systems for reliability and knowledge transfer support. Many teachers avoid AIED due to a lack of understanding (Crompton, Jones and Burke, 2022). To effectively integrate AI tools, teachers should update their educational practices and embrace the challenges of technology in teaching (Skavronskaya, Hadinejad and Cotterell, 2023). In the future, teachers can integrate into their pedagogical approach aspects related to learners' behavior, such as emotions, attention, gestures, and movement, with the support of AI technologies (Crescenzi-Lanna, 2023).

Artificial intelligence tools for effective teaching and learning of business education courses

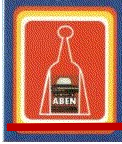
AI-based education enhances entrepreneurial competencies and fosters creativity, benefiting businesses (Nuseir, Basheer and Aljumah, 2020). While AI offers real support in business scenarios for students, further conceptualization of AI's use in business and education is needed, covering critical aspects like processes, activities, and actors (Yang et al., 2022). AI



tools have proven firmly and vastly helpful in various fields, in education or business education. Amongst them, there are computer vision, prediction systems, data mining (Das et al., 2015), intelligent learning or teaching systems, learning analytics (Ley et al., 2023), facial recognition systems, voice or speech recognition systems, virtual laboratories, augmented reality, virtual reality, hearing and sensing technologies, edge computing, virtual personalized assistants, real-time analysis, AI chatbot, image recognition, personalized learning approach, academic analytics, and adaptive learning method (al-Zyoud, 2020; Han, Park and Lee, 2022).

Artificial Intelligence (AI) has become an integral part of our daily lives, revolutionizing various industries and enhancing user experiences. Here are some notable examples of AI applications: ChatGPT is an advanced language model developed by OpenAI, capable of generating human-like responses and engaging in natural language conversations. It uses deep learning techniques to understand and generate coherent text, making it useful for customer support, chatbots, and virtual assistants. Google Maps utilizes AI algorithms to provide real-time navigation, traffic updates, and personalized recommendations. It analyzes vast amounts of data, including historical traffic patterns and user input, to suggest the fastest routes, estimate arrival times, and even predict traffic congestion. Smart assistants, like Amazon's Alexa, Apple's Siri, and Google Assistant employ AI technologies to interpret voice commands, answer questions, and perform tasks. These assistants use natural language processing and machine learning algorithms to understand user intent, retrieve relevant information, and carry out requested actions. Snapchat's, augmented reality filters, or "Lenses," incorporate AI to recognize facial features, track movements, and overlay interactive effects on users' faces in real-time. AI algorithms enable Snapchat to apply various filters, masks, and animations that align with the user's facial expressions and movements. Self-driving cars rely heavily on AI for perception, decision-making, and control. Using a combination of sensors, cameras, and machine learning algorithms, these vehicles can detect objects, interpret traffic signs, and navigate complex road conditions autonomously, enhancing safety and efficiency on the roads. Wearable devices, such as fitness trackers and smart watches, utilize AI to monitor and analyze users' health data. They track activities, heart rate, sleep patterns, and more, providing personalized insights and recommendations to improve overall well-being. MuZero is an AI algorithm developed by Deep Mind that combines reinforcement learning and deep neural networks. It has achieved remarkable success in playing complex board games like chess, Go, and shogi at a superhuman level. MuZero learns and improves its strategies through self-play and planning. These examples demonstrate the wide-ranging applications of AI, showcasing its potential to enhance our lives, improve efficiency, and drive innovation across various industries.

Chiu et al. (2023) identified two main contributions of AIEd assessment: automatic grading and learners' foreseen performance in online classes. The feedback provided to students after the assessment process is immediate and constructive, and instructors can support students in improving specific skills (Hopcan et al., 2022; Southworth et al., 2023). Cope, Kalantzis and Sears (2021) underline the role of AI in the assessment process, not in the conventional form, but especially related to tracking progress and providing "just-in-time feedback". AI can improve assessments (Al Braiki et al., 2020), with benefits highlighting its efficiency and consistency (Chassignol et al., 2018) and presenting the possibility of automating the assessment process. The sustenance provided by AI in education refers to supporting and enhancing the performance of management platforms, analysis of scaled data, personalization of various academic services, increasing work efficiency of administrative staff, and consistency in the decision-making process (Zhang and Aslan, 2021; Chiu et al., 2023).



Conclusion

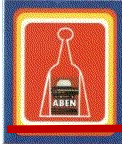
Artificial intelligence as a tool for effective teaching and learning business education courses cannot be over emphasized, it create succor in completing tasks that consume instructor's time at a faster pace, identifying students' preferences and learning styles to generate personalized learning plans, and providing them with timely and direct feedback or assisting teachers in their data-related decisions or works.

Suggestions

- i. The government should ensure to provide enabling environment for effective use of artificial intelligence tools for effective teaching and learning business education courses
- ii. Business educators should embrace the use of artificial intelligence tools in teaching business education courses to reduce stress of attending to the needs of the students.
- iii. Students should be encouraged in applying artificial intelligence tools in learning business education courses by providing free internet facilities in the school by the school management.
- iv. Workshop to be organize by school administrators for both the students and business educators on how effective use of artificial intelligence tool for teaching and learning

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