Implementation of AI applications for teaching/learning English to the post-secondary level students

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**ABSTARCT**

As time passes, machines become increasingly sophisticated, quick to process information, and intelligent. Though it's still a long way off from computers being able to reason, infer, and act exactly like people, there have recently been a number of notable developments in the use of techniques from artificial intelligence (AI) and machine learning. In order to better understand how to use AI apps for teaching and learning English from the point of view of tertiary students, the present chapter looks into various strategies. The study uses an analytical descriptive approach to examine the literature, discuss AI and application methodologies for teaching and learning English, and investigate and analyse the material. The following topics are covered: AI techniques, appropriate applications for the instruction and acquisition of English, the potency of these tools, how they are used in practice and the prerequisites for applying them in these sectors. It covers AI approaches and their pertinent uses for teaching and learning English, as well as the outcomes resulting from these applications, their use in the real world, and the conditions for doing so.

**Keywords:** English Language Teaching, Artificial Intelligence, Post-secondary, Digital teaching

1. **INTRODUCTION**

This chapter aims to improve the capacity of learners to communicate internationally, instruction in the English language is viewed as a critical educational objective. On an exclusive, intellectual, and professional level, learning English is a key educational objective. It depends on educational policies and strategies that prioritise fostering positive attitudes and incentives towards the acquisition of languages, as well as putting such skills to use in teaching, communicating, and learning. Why it's important to use AI apps to write texts, improve students' sentence and text-building skills, and improve their reading and writing abilities. The importance of using AI apps to write texts, improve students' ability to construct texts and form sentences, and exercise writing and reading abilities. Through intelligent dialogue boxes, using AI applications aids in the development of English language proficiency and language communication abilities. Language development processors are enhanced by a variety of intelligent sources, dialogue and discussion windows, intelligent tools for programmes that retrieve knowledge obtained from reading passages, programmes that construct texts for reading instruction, and programmes for communication. The employment of these tools for reading comprehension is advantageous.

The set of abilities that are instilled in computers to ensure they can carry out a variety of jobs effectively and equivalently to humans is known as artificial intelligence. The study, creation, and development of computer systems that resemble human intelligence is another definition of this field of information technology and computing. The field of artificial intelligence (AI) is currently described in the context of this study as the implementation of AI systems to teach English for the purpose to develop methods for gathering, sorting, and choosing scientific data. In accordance with the proficiency of the students, it also diversifies their academic sources and instructional streams. Additionally, by adjusting self-study methodologies and evaluation methods, it is used to build instructional strategies and then reproduce them with the aid of intelligent and experienced systems. The theoretical basis The idea of AI, its rationale, applications for education in broad terms, and its role in teaching and learning English in particular, are covered in this section. This is done in order to assess its significance, its uses, and how it is employed in the discipline of English education and instruction.

1. **The Relevance of and Motives for Using AI**

Using applications of artificial intelligence for learning has become a current trend in experimental research. Studies show that there are more and more applications of AI in education, such as learning programmes alongside other cutting-edge open-source. The usefulness of artificial intelligence (AI) tools for learning depends on their ability to accommodate students' demands and talents, function in harmony with their learning preferences, and track each student's rate of progress. These programmes give all learners, regardless of level, access to tracks that are compatible with them, boost their enthusiasm to learn and address learners' low attention spans. They offer feedback on students' academic progress as well as strengths and weaknesses in scientific content. They make sure that each subject's portions flow logically, that the disciplines in the curriculum are interconnected, and additionally that the learner is proficient in one area before advancing to a trickier one. The scientific knowledge can be presented in the form of problems that the students may have. must resolve in accordance with their self-study streams. Instructors keep an eye on this process and offer suggestions and comments. Teachers may be replaced by AI tutoring systems as a whole which has software that offers help automatically and let students use self-study techniques. Traditional education is transformed by AI into automated education or education provided by sophisticated interactive machines. It creates new material and improves supplemental educational assignments using natural language. AI programmes can tailor instruction and develop fresh approaches to learning and streams that blend several languages and academic fields. As an outcome, they give students the chance to study methods that are specific to their academic levels and individual skills.

Instruction and training in linguistics are necessary for AI and to teach English as a second language (ESL). Because students rarely get the chance to practise these skills in real-world settings, their chances of mastering them are decreased. To address challenges in the teaching and learning of English, it is critical to convert from traditional to communicative ways and make use of digital resources. In today's society, the teaching of English as a foreign language (EFL) has been recognised as essential. The main objective of English classroom instruction is to encourage communicative competence. This is done by teaching students how to use language structures and terminology to improve their speaking, listening, reading, and writing abilities. Additionally, it teaches students how to use language to write texts and comprehend sections in reading. Communication is the process and aims that underpin language development. As a result, in learning and instruction processes and activities, both conventional and digital communication methods must be utilised. As a result, AI applications like simulation and communication tools are necessary since to practise speaking and communicating in English in real-world settings, provide hands-on instruction in language skills, and introduce language-based learning opportunities. Artificial intelligence (AI)-enabled communication solutions help create contexts for training correct letters and word pronunciations using audio exercises and imagery. In addition to auditory and guided pronunciation practice, these tools also include homework for describing and interpreting typical events and pictures. Additionally, they give students the chance to hone their language skills while getting feedback for improvement. Some programmes include language exercises to make sure that students achieve proficiency levels by offering instruction regarding communication through the application of language abilities.

A lot of the challenges associated with teaching and learning English can be handled with AI:

* Developing comprehension of reading passages through the use of information retrieval methods.
* Using machine translation to help students improve their translating abilities.
* Learning the right pronunciation through the use of automatic speech recognition.
* For students who are blind or visually handicapped, use Text-to-Speech methods.
* Usage of free online dictionaries to expand students' vocabularies.
* Enhancing English language learners' speaking abilities with clever software.
* Usage of writing evaluation strategy to instruct students on how to write essays and paragraphs.

1. **Origins of Artificial Intelligence**

The Elements and Concept of Artificially Intelligent Systems (AI), in addition to its Evolution. AI in terms of learning components, procedures, and outcomes, the educational system has undergone numerous significant modifications in the twenty-first century. The duties of educational institutions, educators, and students are changing as a result of intelligent devices like AI apps. They will also change how people engage in the classroom, both physically and virtually. In order to share learning opportunities and achieve the intended goals, students and educators will interact through interactive technologies. These devices will offer interactive learning environments that involve students in group conversations and react to their questions and responses. They will talk about common classroom concerns including motivation and paying attention, as well as unique student variances along with students with special requirements. They will also talk about how to get students to participate in large classrooms, how to give feedback, how to increase student achievement, and how to encourage positive attitudes towards teaching and learning. Artificial intelligence (AI) applications used in the teaching and learning process will directly and favourably affect each of these domains. In 1956, John McCarthy became the first person to recognise AI. The difference between human cognition and AI was looked into at the time since it produced a substantial number of discussions and disputes. As it is built on mimicking human intellect, AI is a branch of computer science that investigates ways to programme diverse tasks that, to some extent, resemble what people accomplish in daily life. Theoretically, this discipline aims to interpret the idea of human intelligence, combined with its forms and dimensions. It investigates the human mind's mental faculties in real-life situations in an attempt to imitate some of its procedures and talents. It then converts these cognitive processes into computer operations algorithms that can be used to address challenging problems. A subclass of artificial intelligence called expert systems gathers and analyses information about human interactions in order to replicate and apply them in specific fields. These mental models are always being improved by expert systems in responding to the situations and problems that people encounter while engaging with AI equipment. This results in smarter decisions, which enhances the educational process.

1. **AI Applications for Education**

Using knowledge representation technologies, AI's main objectives are to imitate some of the behaviours and processes that humans engage in, such as acquiring information, deductive reasoning, and analysing natural language. While there are many different AI applications, Among the most important smart educational systems are sophisticated platforms for online electronic learning. The most important applications of artificial intelligence for teaching purposes are those mentioned above.

They are the culmination of the fusion of a variety of artificial intelligence (AI) systems and applications, including:

* Activating distance E-education
* Intelligent Tutoring Systems
* Activating hypermedia
* Activating the Internet

These programmes together form a network which can improve and modernise the input, procedure, and output levels of education. Applications of AI are characterised by collaboration among learners and open-source tools. They also enable the use of virtual labs and mix the real world and augmented reality in an engaging learning environment. The applications of AI in education are chosen based on subsequent factors.

* Natural language processing programs: These are linked to other programmes and equipment that can understand and produce language. The student uses natural language that the computer can understand to communicate with it.
* Machine programming: The student utilises a computer to create software that interprets or translates incoming data automatically.
* Computerized man or robots: The robotic devices can be utilised in the school to complete extracurricular educational duties. The capability of the computer to see through picture sensors. In order to identify persons and shapes, the computer can analyse images and sketches.
* Computer games: These are games where students can compete with a PC.
* Expert systems: These allow students the opportunity to build databases in certain fields that they can use to solve issues and evaluate actual life scenarios.
* Computer-based learning: Computers are utilised to give pupils instructions, manage teaching and learning processes, and save and retrieve educational experiences. This is all done in a sophisticated environment for independent study.

1. **Applications of AI for Assessment Methods**

The significance of using AI applications to assess and produce the outcomes of student evaluation procedures for tertiary and pre-tertiary learning. Teachers may now precisely gauge their student's skill levels, which is sometimes difficult to do. AI makes this possible. It makes it possible for academic staff to evaluate the standard of training and identify problems with student-provided classroom instruction, scientific data, and instructional materials. Because AI has clever initiatives that identify the students' common errors, give instructors hints as to what their challenges are, and introduce immediate feedback in a file developed separately for each student, it helps in catering to the needs of each student in accordance with his or her skills and needs by implementing home assignments and keeping track of the grades each student receives. Additionally, technology and AI programmes can manage the density of classes. The information above leads one to believe that AI concentrates on two problems. The first obstacle is a theoretical one that focuses on characterising and comprehending mental processes and behaviours as well as portraying human behaviour in activities and contexts that are relevant to everyday life. On the other mutually beneficial ways, the second, or practical issue, deals with simulating human behaviour using intelligent instruments and technology. As well as proposing different scenarios AI systems can be used for student-student and student-machine engagement to produce educational tasks like representing and remembering knowledge. Programmes that effectively translate between languages such as Arabic and English using up-to-date dictionaries and give a precise definitions of vocabulary words based on their contexts are two ways AI can enhance learning. Some principles from reading passages can be introduced via these programmes, which can also arrange words to create sentences and paragraphs and recognise letters as well as phrases using sounds. They are able to connect texts, images, and sounds as well as recognise word mappings.

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