Empowering Engineering Students: Revolutionizing ELT with AI

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Abstract- The present paper will focus on how aspect of using artificial intelligence in teaching English at the college particularly to engineering students. It looks at how several AI technologies can be used to enhance the teaching of an English language using the current trends of flexibility. This paper also includes the form of the choices made by the application of AI in ELT that offers the novel approach to fulfil the special requirements of engineering students to learn English for their examination and make them sustainable in this very competitive global world. Therefore, the goal of the present study is to direct the attention to the problem of personalization of the ELT process in relation to students' background also infusing AI. The paper analyses whether AI could be used as a mediator in providing engineering students with the required level of ELT achievement. This paper proposes the creation of Artificial Intelligence driven integrated digital ELT environment that engages students and are their contextual involvement in adjusting learning mechanisms for every student. It can reform ELT in a sense that can make content relevant to students' in engineering disciplines; this shall force students to participate in activities and present varied and lively tests. Thus having positioned engineering students as the active participants in the learning-teaching process, this AI based platform has the applications not only in ELT but in a globalised world, and even in the students' world.

Keywords: ELT, AI, engineering students, differentiated approach, individualised learning, enabling.

INTRODUCTION

In today's digital age, the intersection of technology and education has paved the way for transformative advancements in the field of language learning. Engineering students today face a unique set of challenges in mastering the English Language skills necessary for success in a globalized world. The traditional methods of language learning often fall short in delivering personalized and adaptive learning experiences tailored to individual needs. However, with the advent of Artificial Intelligence (AI) technologies, the landscape of ELT is rapidly evolving to meet the demands of modern engineering education. For engineering students, proficiency in English is crucial not only for academic success but also for effective communication in a professional setting. With the rapid advancement of AI technologies, there is a growing opportunity to revolutionize ELT practices and cater to the specific needs of engineering students.

THE FUNCTION OF AI IN ELT

ELT has adopted to change by noting the various education needs for the students. In this context, AI appears as an effective mechanism for the individualization of learning and the students' self-education, especially in narrowly profiled areas such as the engineering field. AI can address a key challenge in English Language Teaching: catering, flexibility, differentiated instruction. Old approaches cannot always satisfy the needs of every student who might come from different backgrounds or has another approach to education. The use of artificial intelligence can help in pre-processing students' data and, in particular, identify their benefits, shortcomings, and learning progress. This enables them to have independent learning, in an attempt to acquire specific engineering vocabulary and the relative grammar. Think of an engineering student who is having practice exercises to solve and such exercises contain technical terms in the student's branch of engineering such as robotics or thermodynamics. It makes it easier to engage the audiences, and they in turn, have a better understanding of what is being presented to them.

Another aspect that AI can also foster in ELT is active learning. Activities such as casual

conversations in the form of chat bots or educational games provide the shifted engagement from a spectator model to an engagement model of education. A similar way concerns communicating in the foreign language as students can rehearse the speaking and writing without getting judged, while the AI will provide instant feedback about the pronunciation, grammar and fluency. Associated to this development of their skills, it also instils confidence in them especially concerning communication in English. Moreover, AI can enrich and enhance the very process of an assessment. Such tests have flexibility in them depending on the performance of the students the level of difficulty proposed is increased or decreased. This helps in making sure that the student is stretched to the limit but not over the limit, hence giving a clear assessment of the ability of the student. Moreover, AI programs can give feedback on the mistakes that were made and where exactly one needs to be cautious of. This results in the focused feedback and ability to enhance a learning path and make it move faster.

The role of AI in ELT extends beyond the classroom. AI-powered mobile apps can offer students on-demand access to learning materials and personalized practice opportunities, empowering them to become active participants in their own learning. This flexibility allows students to learn at their own pace, reinforcing classroom learning and fostering a sense of ownership over their progress. However, it's important to remember that AI is a tool, not a replacement for human teachers. The human touch remains crucial for providing emotional support, guidance, and fostering a positive learning environment. AI can best serve as a powerful supplement, empowering teachers to personalize instruction and focus on higher-order thinking skills.

Thus, the potential of AI to change ELT through personalized and active learning, along with effective evaluation methods, is huge. That can be done only by utilizing the roles that AI can best fulfil, along with the irreplaceable role of a human teacher in creating a dynamic learning environment which empowers engineering students and unlocks their full potential in the globalized workplace. Artificial Intelligence can also help language learning programs achieve high efficiency and effectiveness. Using AI-driven algorithms will help ELT platforms to allow and enhance the analysis of students' learning patterns, preference, and areas of improvement so that it provides differential learning content. This way, a learner can pay attention to areas where he needs help the most and speed up language acquisition.

ADAPTIVE LEARNING STRATEGIES WITH AI IN ELT

Artificial Intelligence has opened doors to innovative, adaptive learning strategies in ELT, highly relevant for engineering students with specific needs. Here's how AI can personalize the learning experience. Artificial Intelligence helps the learners to diagnosis of Skill and Knowledge Gaps. AI algorithms analyze student performance data such as quizzes, writing samples, and spoken interactions. This data shows strengths and weaknesses that indicate the areas where students need more practice. In this way, through diagnosis, AI can define personalized learning pathways. Engineering students would thus be guided to blocks focused on technical vocabulary in their field; for example, practices on the description of machinery or mail writing to foreign colleagues. The content of instruction changes according to student performance. For instance, AI would provide many exercises or targeted elucidations if one of the learners has poor mastery on any grammatical point while if he/she gets it easily then it gets new materials or makes them more difficult to keep challenging such learners. AI-driven applications like chat bots or voice recognition systems are very much capable of providing feedback instantaneously while writing or speaking. It underlines grammatical mistakes, suggests different usages of vocabulary or pronounces them correctly.

An increasing number of educational experiences will be turned into games or simulations. AI thus personalizes for each student, depending on what they prefer and their learning targets. For example, an engineering student could have a technocratic English based problem he has to resolve while navigating through a virtual world. Typical forms of measurements are mostly universal for all. AI enables assessments to become individualized whereby the way they are arranged in degrees of difficulty differs according to how learners perform. It avoids wrongly measuring progress by denying the learner the opportunity to read an overly difficult exam and get confused. AI creates learner-centricity in ELT through these variable teaching techniques. The engineering pupils will be instructed at levels and

speeds that best suit and accommodate their learning needs and inadequacies. This will make them very active participants in their learning processes as they advance towards achieving their language goals.

One more significant merit of AI in ELT for engineering learners is the integration of adaptive learning techniques. AI-powered platforms utilize continuous assessment and feedback mechanisms to adjust the level of difficulty of learning tasks for students based on performance. For the learner, this means it is challenging enough but at the same time not causing strain, which ultimately leads to more involvement into language skills and their better retention. Supporting Student Engagement and Practice with Virtual Language Assistants (VLAs) in an ELT Classroom Virtual Language Assistants like Siri or Google Assistant are becoming attractive tools for use in English Language Teaching classes. Here are some ways they enhance classroom experiences: Boosting oral competencies: VLAs give students a chance to practice speaking English in a safe non-judgmental environment where they can ask questions, hold casual conversations as well as receive instant reactions about their pronunciation as well as fluency. This repetitive exercise builds self-esteem when it comes to speaking the language.

By Interacting many VLAs come with games and quizzes that enhance speaking and listening skills. Envision students using a VLA to inquire about weather vocabulary across numerous countries.

Virtual Language Assistances can offer different learning styles. Physical learners can work on pronunciation by mirroring the VLA's prompts. The visual learners are likely to have a better experience using a VLA with a visual interface, which displays vocabulary and sentence structures. Some VLAs allow students to set individual goals and track their progress. As an example of a technical vocabulary learning experience, an engineer might use a VLA to focus on their field-specific lexicon. The students benefit from this personalization as they are able to drill themselves in the English which is most useful to them. VLAs are readily available on most smart phones and tablets. This, in turn, means that the students can enhance their skills even outside the classroom by practicing additional cases, thus bridging the gap between the class and independent learning. VLAs may not always understand complex sentences or regional accents. Teachers should be there to

recognize the limitations and give further assistance when required. While VLAs are great for practicing speaking, they might not always prioritize complex grammar structures. The teachers should ensure that there is a combination of fluency practice and proper grammar usage.

But to sum up, one may conclude that, if implemented into the ELT class, VLAs are really helpful and quite effective to some extent. While speaking practice, activities and individualization, the VLAs can improve the learning and give additional practice to the students For the total outcome. But they are to be used selectively and in conjunction with the teaching of human teachers in order to maintain the right proportions. The synthetic speech agents are useful in the improvement of the performance of engineering students desiring to speak English. The specific research questions utilized for these investigations are as follows; They have the natural language processing function as the intelligent chat bots to enable the students to conduct the conversational English in the role playing scenario. Where VLA is used to teach or facilitate meaningful discussions, the learners get to practice the speaking and listening skills, especially in casual conversation that does not employ professional language and in the process gain confidence due to the practice they get when conversing.

Data-Driven Feedback and Assessment can make a lot of information created by students' interactions in ELT platforms can be analyzed by artificial intelligence to provide immediate personal evaluation. But by use of data analysis one is in a position to know the progress of the students as well as knowing the strength and weakness. As a result of this data, approaches used by teachers in their teaching are rendered to suit the needs of the engineering student for the purpose of enhancing learning results.

CONCLUSION

Since the inclusion of AI in the teaching and learning of English language seems to be the new revelation in ELT, this study embraces this as a shift of paradigm in the way engineering students learn languages. Through the help of such technologies as AI, educators are now able to provide custom and thus effective instructional processes that meet the need of the engineering students. Virtual language assistants,

learning personalization, and automatic feedback systems provide coverage for AI-based platform in ELT which in turn enables engineering students to be equipped with language skills that are vital in competing for academic excellence and professional opportunities that are occasioned by global technological advancements.

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