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Using Artificial Intelligence Applications For Teaching and Learning Foreign Language: Facts and Solutions

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Abstract

In this research, the author will analyze specifically the facts of using artificial intelligence (AI) technology in teaching Foreign Language around the world today. From there, the author will propose some solutions to further improve the effectiveness of using AI technology in teaching and learning English in particular and foreign languages in general in Vietnam in the next period. To do this research, the author uses many kinds of methods such as collecting and analyzing data, making survey and polls, referring related documents, etc.

1. Introduction

The fourth industrial revolution with achievements in science and technology such as artificial intelligence (AI), Big Data, 3D printing technology, etc. These technological achievements of the revolution have strongly impacted many different professions and fields in society, liberating human labor from traditional labor methods and promoting creativity. The field of education and training, including foreign language training services, is not an exception to that trend. The application of artificial intelligence (AI) and Big Data to teaching and learning foreign languages, especially English, has been very popular in the world today. Vietnam is also in the process of developing and integrating deeply into the world. Thus, the use of technology in teaching English is becoming a current trend. However, how to apply science and technology for effective teaching and learning is still a problem that needs to be researched to come up with an optimal solution.

2. Literature review

In computer science, artificial intelligence - AI is intelligence demonstrated by machines, as opposed to artificial intelligence with natural human intelligence. Typically, the term "artificial intelligence" is often used to describe machines (or computers) that are capable of mimicking the "cognitive" functions that humans would normally associate with the mind, like "learning" and "problem solving".

A.I can be classified into three different types of systems: analytic, human-based, and artificial intelligence. Analytical AI has only characteristics that match cognitive intelligence; create a cognitive representation of the world and use learning based on past experiences to inform future decisions. Human-inspired AI has elements from cognitive and emotional intelligence; understand human emotions, beyond cognitive factors, and consider them in decision making. Personified AI shows characteristics of all kinds of competencies (i.e. cognitive, emotional

and social intelligence), capable of self-awareness and self-awareness in interactions.

The field was founded on the claim that human intelligence "can be described so accurately that a machine can be built to emulate it". This raises philosophical debates about the nature of the mind and the ethics of creating artificial beings with human-like intelligence, issues that have been covered by myth, fiction, and philosophy. Some also see AI as a danger to humanity if its development does not decline. Others believe that AI, unlike previous technological revolutions, will create the risk of mass unemployment.

In the 21st century, AI techniques have experienced a resurgence following simultaneous advances in computer power, big data, and theoretical understanding; and AI engineering has become an essential part of the technology industry, helping to solve many challenging problems in machine learning, software engineering, and operations research.

Artificial Intelligence (AI) divides into two schools of thought: Traditional Artificial Intelligence and Computational Intelligence. Traditional artificial intelligence consists mostly of methods now classified as machine learning methods, characterized by formalism and statistical analysis. It is also known by the names Iconic Artificial Intelligence, Logical Artificial Intelligence, Neat AI and Good Old Fashioned Artificial Intelligence. The methods include: Expert system: apply reasoning capabilities to reach a conclusion. An expert system can process large amounts of known information and draw conclusions based on that information. Clippy, the Microsoft Office paperclip helper, is an example. As the user types, Clippy recognizes certain trends and makes suggestions. Computational intelligence studies learning or iterative development (e.g., parameter tuning in a system, such as a connectionist system). Learning is based on experiential data and is related to Non-Signal Artificial Intelligence, Scruffy AI and soft computing. The main methods include neural networks: strong pattern recognition systems; Fuzzy system uncertain inference techniques, widely used in modern industrial systems and consumer product management systems; Evolutionary computation: applying biological concepts such as population, variation and struggle for survival to generate better and better solutions to problems. These methods are generally divided into evolutionary algorithms (e.g. gene algorithms) and swarm intelligence; Behavior based AI: a modular approach to building AI systems by hand.

People have studied hybrid intelligent systems, which combine these two schools. The inference rules of the expert system can be generated by neural networks or by production rules from statistical learning as in the ACT-R architecture.

Artificial intelligence methods are often used in cognitive science research, a discipline that attempts to model human cognition. This is different from Artificial Intelligence research, because AI only wants to create practical machines, not create models of how the human brain works.

3. Methodology research

To do this research, the author uses different kinds of methodology to analyze international and national documents related to Artificial Intelligence (A.I) Application In Foreign Language Teaching And Learning. Moreover, statistics and surveys are also used to finish this research. The author used the poll to survey learners and teachers including children and adult, man and woman, individual and associations in Vietnam. The author also sent the questionnaires to ask them questions related to the Artificial Intelligence (A.I) Application In Foreign Language Teaching And Learning. The author combined all kinds of the methodologies above to do this research. However, because of time and financial limitations, this research cannot cover inclusive aspects of researching issues. Thus, the author looks forward to taking the comments and opinions of readers and reviewers to do better in the next researches.

4. Findings and discussion

4.1 How to apply AI in teaching and learning foreign languages today

Based on AI technology, humans create Foreign Language learning programs on websites and mobile apps. AI has been applied to automate the assessment / grading of exercises of learners, helping them to self-study and self-assess their ability as well as correct their mistakes. This not only makes sense in terms of awareness and improves ability, saves learning costs, but also helps Foreign Language learners to remember longer the knowledge they have accumulated when self-studying online.

For essays, some software like “turnitin” can help teachers quickly and accurately detect whether the content of the essay if is duplicated (plagiarism), have a more accurate assessment of that essay. In addition, when writing essays, learners can use Grammarly application software. It helps to complete the article

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to avoid errors in grammar, spelling and find the most appropriate words for the content of the article automatically without the help of the teacher.

In addition, chatbot is also an effective AI tool on online English teaching and learning platforms. It automatically answers questions and concerns of online learners.

AI technology is also applied on automatic pronunciation training programs. Learners can practice listening and speaking like native Foreign Language speakers. This application is capable of assessing the standard pronunciation of learners as well as having automatic listening and speaking exercises so that learners can practice listening and speaking natively whenever online.

4.2 Some popular AI applications can be used in teaching and learning English

4.2.1 ELSA (https://vn.elsaspeak.com/)

ELSA Speak is the only English speaking and communication learning application that can help you correct pronunciation errors down to each syllable thanks to the Top voted exclusive Artificial Intelligence (AI) voice recognition ability. Based on the results of the learner's input pronunciation test, ELSA also offers a separate learning path that is most suitable for each learner to help them save time and improve learning efficiency.

Users can use the ELSA application on both laptops and smartphones. ELSA is built using Artificial Intelligence (A.I) technology, so it can accurately analyze learners' voices up to 90%, something that not many teachers can do.

ELSA currently has six main activities around practicing and developing communication and pronunciation skills in English, including: Speaking Practice, Listening Test, Sound Stress, Dialogue, Intonation, Video Conversation. ELSA currently has a total of more than 6000 exercises and more than 59 different topics updated monthly.

4.2.2 Grammarly (https://www.grammarly.com/)

This is a pretty popular AI application today. Grammarly is used to edit and complete articles in a professional manner, with native English standards. Grammarly helps to compose text in clear written English, not to be confused with the application of artificial intelligence (AI). Grammarly suggests words and grammar as people use it to write in desktop apps and websites — as users move between apps, social networks, documents, messages and email. From grammar and spelling to style and tone, Grammarly's suggestions are comprehensive, helping users communicate effectively and exactly as they want. Grammarly allows users to put those communications out there and feel confident that they're giving their best.

This application is especially useful for businesses who can use English professionally, accurately and effectively.

4.2.3 Turnitin (https://turnitin.com/)

Turnitin is a plagiarism checker software that is being used by many universities around the world. The application can easily check the text in the article and compare them with the source database to find out the duplicate content and the rate of duplicates on each article.

Turnitin is currently an application that is trusted by many universities and even in Vietnam. There are universities such as University of Economics, Hoa Sen University, Ton Duc Thang University, etc. have been using feature packs very convenient from Turnitin.

With its huge source database, the Turnitin app provides reliable and accurate plagiarism results. Turnitin can raise the awareness of students in the university lecture hall.

Turnitin has a simple interface, easy to use and especially supports many different languages. One of the most outstanding features is that it saves a lot of time for teachers in the grading process, and the results are returned extremely quickly and in detail.

For every student, it is extremely difficult to bring the plagiarism rate to 0%. Therefore, before submitting the work to the lecturer, it is recommended to check the plagiarism rate in the article to promptly review and cite the source properly to avoid errors such as duplication, copying, data collection, etc.

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5. Conclusion

From the above analysis, it can be seen that the application of AI and Big Data in teaching and learning foreign languages is very necessary in the current period. To make the most of this application, there are a few things to keep in mind:

i. Firstly, incorporate the use of AI applications into traditional lessons and assessments appropriately to maximize the effectiveness of these applications and human intelligence. Blended-learning can be used. That is, combining both online teaching and learning (online) with face-to-face (offline). Teachers can guide students on how to pronounce directly. Then encourage learners to use AI technology applications such as ELSA to practice listening and pronunciation, speaking native English. Or when guiding learners to write essays. They can be suggested to use the Grammarly application to edit and perfect the structure, sentences and grammar to standard with professional English.

ii. Secondly, it is necessary to encourage the creation of appropriate AI-application English teaching and learning software by developing technology incubators, Startups in the field of education using AI, calling for investors, investment funds to invest in technology startups that use AI in teaching and learning English. Only the application of AI in teaching and learning English will be effective and replicated.

iii. Thirdly, the state needs to have policies to encourage and support so that teaching and learning foreign language using AI technology is widely disseminated and can be accessed and used by all subjects.

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