Research Article

The Influence of Artificial Intelligence Technology on Teaching under the Threshold of “Internet+”: Based on the Application Example of an English Education Platform

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Today's era can be treated as the Internet era as the world revolves around the Internet for unlimited access to the resources available in a remote area. The Internet has made a deeper penetration in the education sector; the traditional offline classes are being replaced with online and offline classes to make the quick and effective teaching and learning process. Some researchers are exploring various technologies to incorporate digitization and visualization of courses to improve the independent learning among the students and for effective modeling of course contents. Artificial intelligence, deep learning, machine learning, and edge computing are some technologies implemented to increase the student's and teachers' interaction for improved performance of the learning process. A genetic algorithm with artificial intelligence is proposed in this research work to choose teaching and learning management with English courses in colleges and universities. For making analysis, the student performance dataset is taken from the UCI repository. The teaching and learning management of the English course is analyzed along with the student's behavior towards the online English course. The results show that the student's response to the classes is increased with the involvement of the artificial intelligence technology with the Internet.

1. Introduction

Artificial intelligence (AI) is growing, and its use spreads at a dangerous rate, and AI has become part of our daily life. The global adoption of technology in education has changed the teaching and learning method. One of the disruptive techniques to customize various learning groups, teachers and teachers experience artificial intelligence. Mechanical learning and artificial intelligence are the main drivers of growth and innovations in all industries, and the education department is not different. According to the E-learning industry, 47% of learning management tools are operated with AI skills in the next three years. Although the AI-running solutions have been in the EdTech place for some time, the industry is slow to follow them. 86% of academics say technology should be the central part of education. AI can improve both learning and teaching, and the education sector helps develop the best benefit for students and

teachers. AI has changed the method of learning of people. AI technology and online media in information systems are implemented in online college English teaching practice. The entire teaching practice process is recorded and analyzed. According to the results of a teaching practice analysis, “that under the method of College English educational information. The structure of College English powered by AI technology” enhances students' learning capacity and significantly enhances their English learning successes [1].

However, in the field of education, its adoption has challenges and ethical problems. The purpose of this study is to analyze AI's opportunities, benefits, and challenges in education. The education world is very convenient and customized by the numerous applications of the AI of education. Since smart devices and computers are accessible to all teaching, it has changed the method of learning. Today, students do not have to go to the body classes to read because of

the computer and the Internet connection. The automation of AI administrative tasks allows companies to reduce the time required to complete the complex tasks, and the academics can spend more time with students. It is time to discuss the changes in academic AI. This study is aimed at assessing the impact of AI in education. More specifically, in the administration of the various aspects of education, including instruction and learning, it is tried to find out how education affected the AI. Artificial intelligence (AI) is usually more associated with computers. However, the review of the various articles, particularly in the context of the education sector, as the basis for the development of artificial intelligence systems located only attraction of the system is the hardware and software, or equipment, artificial intelligence. Embedded computers, sensors, and other emerging technologies such as artificial intelligence machinery and buildings and robots are used to switch to other products. The analysis of a deep learning-based teaching procedure is an unavoidable pattern of the customized teaching system that uses a decision tree [2]. The classification guidelines are applied to personalize the learning impact of the students and to individualize the teaching method as well as teach student activities based on their aptitudes. The expertise of AI systems is imaginatively extended to an English learning and memory procedure and is depicted as a multifaceted variable in data points. The successful growth of construction of open network initiatives provides an excellent opportunity to convert the English academy's classroom teaching mode effectively. As a result, the flipped teaching model in English practice can point to a new development path for the implementation of the two major stages [3]. It also has important and practical implications in compensating for the shortcomings of the traditional teaching model. They actively respond to various attacks and problems in the teaching process to change the development of classroom teaching. The experiments demonstrated that the proposed model could assist students in updating their learning concepts, methodologies, and contents of English and encourage [4] their interest and initiative by comparing this to some existing teaching methods, thus improving their learning effects and application capacity of English. As a result, the built eco-environment offers a new idea and direction for English teaching reform through the use of machine learning and artificial intelligence. An artificial intelligence-based framework of English teaching integration is suggested to address the problems of limited precision and high redundancy. In the assimilation of educational materials, a web crawler technique for separating is used to collect information from web pages.

2. Literature Review

An English teaching resource and to create an index database L-NCD is used to remove redundant data from English teaching resources [5]. Similar to the theoretical classes, practical exposure to the subjects is also needed with flipped classroom technology. The authors of [6] have discussed the concepts in practical ideological and political theory teaching of classroom courses through artificial intelligence and

modified machine learning algorithms. When English learning is mandatory and if it is introduced in online teaching through flipped classrooms with the aid of the internet [7, 8], it has improved English teaching and self-learning habits. The author of [9] has also suggested that the online flipped classroom teaching method has increased the understanding of theoretical courses more straightforwardly. According to [10], authors have discussed the future of the learning system in higher education since the revolution of artificial intelligence. As a solution, the authors have suggested following the learning management systems through updated information technology with control over the usage of artificial intelligence. The authors in [11] discuss an automatic scoring system for English composition. This scoring system aids in the improved teaching and learning system in colleges and universities. In China, the development of science and technology has improved the national's status. The automatic test paper generation slowly replaces the traditional English learning and examination with computer technology, resulting in the English Test Management System (ETMS) [12]. It is a multiconstrained problem to extract the question paper, and an improved genetic algorithm is implemented to solve the generated questions. The authors of [1] have discussed improving English teaching in middle schools with the modified teaching system with additional features. The author of [13] proposes English network intelligent teaching by combining the two technologies like the AI and WBIETS system to construct the English Network Intelligent System (ENTS). The access of resources by the students and the teachers is maintained using AI and WBIETS to aid in the maintenance or allocation of resources to the authorized persons. The authors of [14, 15] have analyzed the role of AI in English teaching and learning classrooms. The traditional teaching model is teacher-centric, whereas the modern one is student-centric, which aids in the student's independent learning [16]. The author of [17] has elaborated the process of foreign language education (English) through AI-powered tools like ICALL (intelligent computer-assisted language learning). This ICALL is a subset of the CALL function, which is less time-consuming for the learners to study a foreign language. In the papers [18, 19], the authors have discussed the effective English teaching and learning mechanism with the implementation of deep learning technology. When English learning is made online, a logical structure for annotations is provided for easier course streaming which is proposed by the author in [20]. In the English education evaluation, the machine learning framework is designed and analyzed by the author of [21]. As an extension of the previous author's work, [22] has set specific morphological rules with machine learning algorithms to improve assessment evaluation. The authors of [23, 24] have examined the role of deep learning and machine learning algorithms in English teaching and identified students' features to design the teaching model.

3. Motivation of the Study

Teachers must devote a significant amount of time and effort to problem-solving, grading, and calculating data

analysis scores. It also requires time and dedication, but it does have several drawbacks. An examination is an essential means of testing teaching quality and students' overall ability, which must reform due to a combination of computer technology and science. An English test control framework that is efficient, quick, and systematic is desperately needed. The use of digital technology for automatic exam paper generation is a primary factor in English test management solutions. The intelligent test system generally relates to a computer and to the examiners' performance of parameters. This process is a regular activity problem to retrieve its exam papers from an English test questionnaire that satisfies restrictions of a test paper. This paper presents an improved genetic algorithm to overcome this problem of exam paper creation in English. This paper is aimed at getting the exact result based on the experimental analysis, which needs to satisfy users' specifications for questions, materials, and scores.

4. Proposed Work

The educational learning Internet system is a web-based remote teaching system. This method of instruction can stimulate students' interests, allowing them to learn on their own terms, and automated testing document generation is among the most significant elements in the English teaching communication network. The wireless sensor network architecture is followed by a wireless sensor infrastructure teaching testing system that is based on a genetic algorithm. The platform's various sensor nodes could indeed form a variation of topologies, the data collected should be sent to the mobile terminal via the GSM network, and the user also can regulate the remote detecting node via the GSM network. It is necessary to improve the genetic algorithm with an application of a document because the traditional genetic algorithm is not for using the team. First, the mathematical formulation for this qualifying examination is built.

The parameters based on the dataset used in this research work are travel time (home to school travel time) (numeric: 1—<15 min, 2—15 to 30 min, 3—30 min to 1 hour, or 4—>1 hour), study time (weekly study time) (numeric: 1—<2 hours, 2—2 to 5 hours, 3—5 to 10 hours, or 4—>10 hours), higher education (wanting to take higher education) (binary: yes or no), activities (extracurricular activities) (binary: yes or no), G1 (first period grade) (numeric: from 0 to 20), G2 (second period grade) (numeric: from 0 to 20), and G3 (final grade) (numeric: from 0 to 20, output target), which are used to implement the English learning education.

Step 1. The framework will extricate questions (2—listening, 2—vocabulary and grammar, 1—reading comprehension, 1—finished fill, 2—tenses, and 1—writing questions). Also, since every question has four characteristics (subject, quantity, worth, and difficulty), they can build a 9×4 order destination matrix S to represent the framework of the exam paper which is given in

$$S = \begin{bmatrix} s_{11} & s_{12} & s_{13} & s_{14} \\ s_{21} & s_{22} & s_{23} & s_{24} \\ s_{31} & s_{32} & s_{33} & s_{34} \\ s_{41} & s_{42} & s_{43} & s_{44} \\ s_{51} & s_{52} & s_{53} & s_{54} \\ s_{61} & s_{62} & s_{63} & s_{64} \\ s_{71} & s_{72} & s_{73} & s_{74} \\ s_{81} & s_{82} & s_{83} & s_{84} \\ s_{91} & s_{92} & s_{93} & s_{94} \end{bmatrix}. \quad (1)$$

s_{11} to s_{91} are the headline of a question, s_{12} to s_{92} are the quantity of the headline, s_{13} to s_{93} are the exam results, and s_{14} to s_{94} are the difficulty of an exam. In this research work, a genetic algorithm with artificial intelligence is implemented. A matrix representation is required for representing each problem with four attributes. These four attributes signify four aspects. It will direct the people in the correct direction in selecting a brilliant examination question. The following constraints must be met by the matrix to satisfy the maximum number. The overall score of a test paper is limited to $\sum_{i=1}^9 s_{i3} = 100$; also, the statistic K method scores are limited to $\sum_{i=1}^9 s_{i3} K_i$.

Step 2. Initially, in each test, it is hard to find a classwork that meets the requirements of an environment by the genetic algorithm. Throughout this manner, the level process is really only established for such test publication's difficulty. The optimization problem is as follows: here the random forest algorithm is used because the number of records is taken from the dataset having the number of test level processes and represents the various factors.

$$P = \sum_{j=1}^4 P_j d_j, \quad (2)$$

where P_j represents the level of the process and d_j represents the different factors.

Step 3. P_j is the ultimate method valuation of j and the quantity of the existing final examination and the distinction between both the feature limitation values of the j quantity; the strength of the differential factor is denoted by d_j . When the difficult coefficient is considered for evaluation, the optimization problem can be reduced to equation (3) to represent the significant quantity established for the factor.

$$P = P_4 d_4. \quad (3)$$

Step 4. $P_4 = |\sum_{i=1}^9 s_{i3} s_{i4} / \sum_{i=1}^9 s_{i3} - ND|$ is the ultimate error between both the ordinary difficulty of trying to generate the exam papers and the predefined test's major difficulty constraint. ND is a fictitious test difficulty limitation. d_4 is

FIGURE 1: Overall framework for artificial intelligence educational roles using the English teaching system.

TABLE 1: The number of students (M + F = 1046) will benefit from the smart classroom framework in every way.

Items	Very supportive	Supportive	Overall	Not much support	Not much help
Increase your desire to learn	11 86.9%	4 26.1%	0 0.0%	0 0.0%	0 0.0%
Increase your desire to learn	7 56.1%	6 35.9%	3 17.5%	2 8.5%	1 0.1%
Increase your enthusiasm for learning in the classroom and your cross-cultural communication skills	9 65.4%	8 36.2%	5 8.6%	0 0.0%	0 0.0%
Item on the survey	7	6	3	5	1
Increase your desire to learn	67.5%	27.6%	19.3%	0.0%	0.0%

the value of the significant problem coefficient's distinction factor. The fitness is typically designed to just be inversely related to the optimization problem. To keep the common factor from just being zero, the genetic algorithm can be designed as

$$R_j = \frac{1}{\left(1 + \sum_{j=1}^4 P_j d_j\right)}. \quad (4)$$

Step 5. Similarly, only such difficulty correlation can also be reduced to

$$R_4 = (1 + P_4 d_4). \quad (5)$$

Step 6. It is clear that the higher the E value, the higher the quality of the science test. When $E = 0$, the optimal option that

meets all of the restrictions is discovered as in equation (6). This evaluation provides a higher quality test.

$$E = 1 - d = \frac{1 - e}{t}. \quad (6)$$

Step 7. The evaluation difficulty is structured into four conditions: difficult difficulties ($d < 0.4$), more adverse circumstances ($d < 0.7$), middle discussions ($0.4 \leq d \leq 0.7$), and effortless answers ($0.6 \leq d \leq 1$). The ordinary challenge of the exam paper is organized as

$$ND = \sum_{i=1}^n \sum_{i=1}^n \frac{E_i k_i}{\sum_{i=1}^n E_i}. \quad (7)$$

Step 8. ND denotes the ordinary difficulty of an exam paper, m denotes the series of questions on the exam paper, i represents

FIGURE 2: English network teaching system design representation.

the number of exam questions ($i = 0, 1, \dots, n$), E_i denotes the difficulties of a i test, and d_i denotes the i test score. The multiple analytical method is being used in the article to determine the evaluation area scoring rate as

$$D = \frac{R_T - R_O}{g}. \quad (8)$$

Step 9. Every neutral test result with the possible outcome of occurrence or nonoccurrence in the category is calculated. This set of experiments is known as a heavy binomial laboratory activity, as it continues to follow

$$E_g(w) = \binom{g}{w} E^w f^{g-w}, \quad (9)$$

$$W = gE. \quad (10)$$

A proposal for an online teaching method of automatic generation of practice tests is represented in Figure 1. The framework is initiated by wireless sensor nodes, followed by a random forest-based teaching observation network built with a genetic algorithm. Artificial intelligence techniques are utilized in this research work to automate the teaching and learning process through visualization. After automation of the teaching, the genetic algorithm concept is being used to provide the English teaching system. With the aid of the genetic algorithm, it can split the long-duration video into multiple smaller videos that focus on the targeted subject concepts. Next to this teaching model is the artificial intelligence educational role

TABLE 2: Result to data analysis table of the behavior classification model for English online teaching students.

No.	Rate of action recognition (%)	No.	Rate of action recognition (%)
15	91.77	16	95.34
2	95.89	17	98.29
3	93.80	18	93.65
4	89.43	19	91.94
5	91.34	20	90.45
6	93.53	21	89.69
7	97.24	22	97.38
8	95.95	23	95.27
9	96.57	24	94.63
10	91.78	25	96.12
11	92.74	26	93.81
12	97.12	27	94.20
13	98.67	28	92.47
14	94.38	29	97.27
15	89.78	30	95.92

(AIER). The function of AIER is to promote intelligence in four phases of teaching and learning. An intelligent teaching assistant provides different learning strategies to the students and answers the queries raised by the students. The answer to questions is given intelligently by retrieving the response from the already loaded question-answer forum, similar to the frequent question and answer section. The intelligent level of the students is evaluated by assessment and periodic tests which

FIGURE 3: Illustration of an evaluation of the teacher's teaching context.

TABLE 3: The result analysis of an evaluation of AI using educational platforms of the English teaching system and learning context.

No.	Learning management	Teaching management
1	75.7	74.7
2	94.2	86.4
3	62.5	88.6
4	83.3	93.4
5	77.8	89.7
6	79.9	85.6
7	82.8	75.3
8	89.7	96.5
9	82.6	75.8
10	62.4	85.2
11	83.3	95.4
12	88.5	74.6
13	88.6	86.7
14	79.6	85.5
15	78.4	91.8
16	86.4	93.5
17	78.6	81.4
18	72.6	85.6
19	85.4	97.8
20	89.5	86.4

generate the report. Performing analysis of students periodically can obtain the intellectual level in the specific context. It will automate the students to learn that content frequently to increase the level of knowledge. Learning economic assistance and political strategies will influence students to effectively

FIGURE 4: Illustration of a statistical evaluation of the English online teaching behavior recognition.

TABLE 4: Result of statistical evaluation of the English online teaching behavior recognition.

No.	English online teaching	Student behavior recognition
1	91.77	95.34
2	95.89	98.29
3	93.8	93.65
4	89.43	91.94
5	91.34	90.45
6	93.53	89.69
7	97.24	97.38
8	95.95	95.27
9	96.57	94.63
10	91.78	96.12
11	92.74	93.81
12	97.12	94.2
13	98.67	92.47
14	94.38	97.27
15	89.78	95.92

learn the subject in the context of future job opportunities and the pros and cons of the issue. The method discussed in this report is implemented to English teaching, and the stochastic algorithms able to run performance are increased.

Table 1 shows the benefits of a smart classroom framework to the total number of students including (male and female) 1046 in all aspects. According to the table, 68.9% of students believe this teaching method is indeed very helpful in improving their interest in learning, while 26.1% believe it is helpful, indicating that everyone has fully recognised that this teaching approach can achieve their interest in understanding.

The reduction in likelihood of the issues is represented in Figure 2. Teachers must use AI techniques to scientifically

FIGURE 5: The recognition of student and teacher actions and behaviors.

define the standards, models, and processes needed in the learning process for the students. The objective is to accomplish a beginner educational environment in informatics courses using innovative instructional methods known as the classroom setting. In addition, they created an intelligent learning detection approach to aid in the delivery of this course. The innovative group uses reversed teaching education, while the regulate group uses classroom teaching. From Figure 2, it is observed that the GA is implemented to choose between the learning and teaching management. Learning management will be utilized by the students whereas the teaching management by the teachers. The teachers have to decide on the course and preparation of the materials and also update the course material whenever required along with monitoring the timely delivery of the course contents to the students.

The preceding analysis examines the model's performance and integrates English online teaching to suitably qualified learning behavior. The English online learning on 30 students is investigated and classified. The teaching efficiency of the 30 participants is also evaluated. The classification process involves group classification as real or descriptive objects. The classification of data into classes is performed by identifying the data with similar parameter characteristics and conducting dimensional analysis of various classes. The distinction between grouping and systematic classification states that clustering is not always a required predesign for labeling the classes or information. However, automatically classifying and marking categories are an example of an observational method of learning instead of a classification method. Overall, clustering divides the objects into distinct subsets or categories; however, the varying time and frequency characteristics are utilized in cluster analysis as teaching identifiers. Table 2 presents the data of student activity recognition.

TABLE 5: Result analysis for recognition of student and teacher actions and behaviors.

Recognition of student and teacher actions and behaviors using AI		
	Test group	Control group
Silence and chaos	2.8	1.7
Teacher interaction	47.3	58.4
Student interaction	51.9	41.8

4.1. Experimental Result. The English teaching network system is an online remote learning system. This teaching method can convince students' objectives, allowing them to learn according to their own aspects, and automated testing document generation is among the most critical modules in the English teaching network system. This document first wants to introduce the artificial intelligence network structure briefly before presenting an artificial intelligence network teaching experiment system that is based on such a genetic algorithm. Such a paper has described the automated testing problems and the restricted multiobjective difficulties, followed by the configuration of a genetic algorithm to solve the test paper as well as questions predicated on such an encoding technique and predicated also on difficulty as well as test points of a genetic algorithm for dynamic adjustment of parameters with an iterative process. Eventually, experiments show also that the test paper created using this method fulfils users' requests for questionnaire, materials, and scores while also improving the ability to run efficiently.

Figure 3 utilizes regression-based supervised and unsupervised learning as the research foundation for developing an online English teaching assessment methodology. It also focuses on problems, including a semisupervised random forest algorithm with the support of a genetic algorithm. These issues are persistent in artificial intelligence, and there is a lot of research done on them. Unlike previous studies,

TABLE 6: Algorithm comparison of two types of test papers.

Dataset	Experimental number	Fuzzy clustering method (%)	Genetic algorithm with random forest
Student performance dataset	1	89	96
	2	91	98
	3	92	97
Overall accuracy (%)		90.66	97

this paper utilizes matrix completion as well as generative frameworks to reinterpret these two problems in a new perceptive and test results based on the efficiency of multiple simulation studies as well as actual datasets.

The experiment is done mainly by the following methods: evaluation and systematic evaluation. It is presumed that professional evaluation is used in its assessment because the artificial evaluation process is used to assess the accuracy of the testing process. Table 3 shows the assessment results of the students who deserve 20 teachers.

From Figure 4, the framework developed in this paper is similar to the manual analysis results, with an inaccuracy of no more than 4%. Because the manual ability to score performance in this document is relatively accurate, the system's performance is also accurate and reliable. As a result, shown in Table 4, it can be concluded that the method developed in this paper has a positive effect just on teaching evaluation and can implement it to teaching and learning (Table 4).

Based on the results represented in Figure 5 of the preceding analysis, it is clear that the model developed in this paper positively impacts the recognition of students' actions and behaviors. It can be observed that the teaching interaction in the closed group has higher performance when compared to the test group and the variation is approximately 21.1% greater for the earlier group. However, the closed group is around 20.1% less than the test group when comparing student interaction. In both cases, the silence and the chaos observed in the class are very meager compared to the interaction.

Table 5 illustrates the ratio result of teaching-learning structure to evaluate the efficacy of the classroom learning framework to ensure that there are no significant variations in all aspects, excluding the various teaching models. In this experimental investigation, the interactive teaching strategy with students accounts for 60% of the total structure. It is greater than the proportion of interactive behavior with teachers as the main structure (47.3%). The interactive behavior of the controlled group with students as the main structure is attributed for 41.8%, which was inferior to the quantity of interactive behavior with teachers as the main structure (58.4%).

Genetic algorithms to determine the best solution seemed to be much less than that of the random algorithm. The variety of searches is widely given with global lookup in genetic algorithms. The selected genetic material is iterated based on the optimal solution, looks for the best path, and finds the fuzzy clustering method to be easier for implementation. It could be established that the dynamic alteration of parameters depends on the outcome. The rest of the experi-

ment effectively solves the interobjective issue, a technique that gives document creation of exam questions. It could indeed quickly identify the fuzzy clustering method when trying to compare it to the probability fuzzy clustering method. Algorithm comparison of two types of test papers is shown in Table 6.

5. Conclusions

In recent years, tremendous growth has been observed in technology. Among the various information technologies, artificial intelligence with the Internet plays a significant role in developing all the involved sectors. In this research work, artificial intelligence with the genetic algorithm is proposed to produce effective teaching and learning of the courses in the colleges and the universities. This research work considers English course handling with the student response dataset obtained from the UCI repository. The results show that the student learning and course material preparation performance has increased with the advanced student-teacher interaction. This student-teacher interaction is improved because of the tremendous growth in technology and its practical usage in the education sector. If this proposed model is implemented with the support of Internet+, then there will be a further increase in the performances that can be obtained.

Data Availability

The data used to support the study is available upon request to the corresponding author.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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