Construction of Mixed "Golden Course" Curriculum System of College English Based on Achievement Orientation

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ABSTRACT Accurate performance evaluation and adaptive resource allocation are essential for intelligent information processing and data-driven decision-making in modern digital learning environments. To address the limitations of conventional English teaching assessment methods, this study proposes a Golden Course-based Teaching Performance Analysis Model (GC-TPAM) that integrates Principal Component Analysis (PCA), Radial Basis Function Neural Networks (RBFNN), and Support Vector Machines (SVM) into a unified machine learning framework. PCA is employed to transform correlated evaluation indicators into representative principal components for dimensionality reduction and feature extraction, while RBFNN performs nonlinear teaching performance assessment and SVM generates personalized learning resource recommendations based on dynamic student models. The proposed architecture combines multisource educational data with adaptive evaluation and intelligent recommendation mechanisms to improve assessment accuracy and learning efficiency. Experimental results demonstrate that GC-TPAM achieves a student satisfaction ratio of 85.66% and a personalized learning ratio of 90.21%, outperforming existing comparison methods while maintaining superior teaching effectiveness and student achievement. Beyond educational applications, the proposed machine learning framework provides an effective solution for intelligent information fusion, adaptive pattern recognition, and data-driven decision optimization, offering methodological references for communication-oriented sensing systems, intelligent information processing, and engineering applications related to Electromagnetic Waves, Antennas and Propagation.

INDEX TERMS machine learning; principal component analysis; adaptive pattern recognition; intelligent information fusion; personalized recommendation

I. OVERVIEW OF GOLDEN COURSE-BASED COLLEGE ENGLISH TEACHING

THE Chinese Ministry of Education issued the "Notice on the implementation of the spirit of the undergraduate education work conference of the national higher education in the New Era" in August 2018, further simply stating that all universities and colleges should conclusively sort out the learning materials of each curriculum, completely remove the "watercourse," start creating a "golden course," and successfully enhance the quality of curriculum teaching [1, 2]. It increases the cognitive load of assignments and enhances curriculum rigor, and broadens the study material's scope to improve the instruction's effectiveness [3]. In this work, it was recommended that golden courses made of gold teachings be constructed based on outcome-based education to promote inventive talents in developing appropriate values and perspectives on life [4]. The program aims to develop graduates' linguistic competence aligned with academic and professional communication requirements [5]. Traditional teaching relies heavily on a face-to-face lecture to impart information [6]. The students do not have sufficient intrinsic motivation to participate in the learning process [7] actively. There is a gradual shift from traditional classrooms to online learning spaces as the internet and information technologies grow. The introduction of the new teaching model, which emphasizes the use of communication technology and wireless technology within educational settings [8], herald the start of a new phase of educational change. Both the public sector and the private sector have made the greater use of technologies in education and instruction in the English language with the assistance of technology a priority [9]. Many different e-learning systems hav been developed throughout the last few years [10].

Online education is a learner-centered paradigm that emphasizes students' initiative and too little on instructors' assistance in learning processes [11]. It leads to a loss of perspective on the structure of information and the length of time it takes to acquire new things [12]. In online courses, students are happier if they access high-quality online information and teachers who lead the class in a collaborative

context [13]. There are three perspectives on this curriculum reform scheme [14]. Simulated International Conference (SIC)-related teaching material should be included in the spoken English curriculum to improve pragmatic language skills [15]. Another option is to undertake Sino-International collaborative teaching by bringing in foreign teachers and graduate students from other countries to work alongside colleagues in the classroom [16]. Thirdly, supplement summative evaluation with formative assessments to monitor students' progress in learning [17]. An important part of strengthening the teaching management level and teachers' competence to teach and the quality of college education is assessing university instructors' teaching quality [18]. Through teaching quality assessments, schools may enhance the administration of classroom instruction while providing instructors with the feedback they need to improve their teaching practices [19]. The educational paradigm of "outcome-based education" (OBE) is founded on the idea that students should be held accountable for achieving certain results (outcomes). Each student should have reached their objective by completing their schooling. Schools and instructors want pupils to attain the required learning goals or standards or want students to have educational and lifelong benefits to society. As a major component of college education, assessing the quality of English instruction is more difficult than most. Currently, questionnaires, in-depth assessments, and expert ratings are used to assess the quality of a teacher's teaching. Questionnaire results may be impacted by the number of questions and design quality. The complete evaluation method is fast and does not restrict the number of samples that may be analyzed. This strategy relies on knowledge, and the findings are constrained by the expertise and experience of the experts. Therefore, this study provides a machine learning-based English teaching assessment approach that may enhance the evaluation's results successfully.

The main contribution of this paper: i) The suggested GC-TPAM system may recommend learning resources based on a student's profile using SVM. ii) English teaching evaluation index is evaluated by the Radial basis Function Neural Network (RBFNN). iii) The eigenvalues and eigenvectors of the performance measures are calculated using the principal component analysis (PCA) to estimate the contributions of the English teaching performance appraisal indicators. iv) The experimental results and our proposed method GC-TPAM achieve higher student performance and teaching rates than other methods.

The GC-TPAM model is structured as a four-layer architecture consisting of data acquisition, feature processing, evaluation modeling, and recommendation output. Each layer is functionally independent but connected through standardized data interfaces. The main contribution of this paper lies in the integration of machine learning techniques into a unified teaching evaluation framework. The novelty is reflected in the structured combination of PCA-based feature transformation, RBFNN-based evaluation modeling, and SVM-based recommendation within a coherent pedagogical evaluation pipeline, rather than the individual use of these techniques.

The overall organized paper follows sections: section 1 expresses the overview of Golden Course-Based College English Teaching, section 2 explores the related work, section 3 demonstrates the proposed work, section 4 identifies the numerical outcome and section 5 concludes the overall paperwork.

II. RELATED WORK

This research was conducted to determine whether the Integrated Task-Based Learning (ITBL) technique helps vocational students improve their English language abilities. Qualitative research methodologies with a literature review approach were used in this study based on the goals of the investigation [20]. Researchers collected papers and journals, reduced and summarised them, discussed them in-depth, and concluded. Research data can be found in articles and linked periodicals that focus on the same subject matter. According to the research findings, vocational students need to acquire and develop the capacity to speak English. The ITBL approach would be a great way to help students become ready for the workplace by honing their English communication skills.

The research examines the overall effect of using the Blackboard online platform for English as a Foreign Language EFL teaching and learning [21]. The research concludes that the usage of blackboard technology was beneficial for students. An evaluation of the literature found that using Blackboard technologies in EFL sessions had a positive effect. Researchers say that in EFL, the advantages of Blackboard Technology (BBT) exceed the disadvantages. However, technology integration into today's schools was always hampered by technological difficulties.

Additionally, even though these highly technological teaching tools represent a step in the right direction, they should not be an ideal replacement for the tried-and-true teaching and classroom activities and interactions organically in classrooms. Teachers and students both need to put in extra effort to contribute to technologybased programs. When it comes to online education, teachers require a lot of motivation and assistance. Golden Courses were the driving force behind higher education reform and the building of first-class undergraduate education. This paper was based on higher education's educational and teaching philosophy in software and was intended to build a national first-class blended teaching curriculum [22]. It was studied to develop a framework of the Four-Phase Iteration and Dual Elements and Combination curriculum and a mix and match of on-and offline teaching methodologies. Curriculum design, teaching material, course resources, teaching techniques, varied assessments, and feedback were investigated and implemented throughout curriculum building. As a result, blended instruction's "golden course" structure may be realized, and education reform can be furthered.

Students' support for online learning has not kept pace with the proliferation of online teaching technology that enhances virtual classrooms during the last two years. An attempt will be made to alleviate this problem by simplifying accessing a theoretical subject, solving activities or commenting on course organizational issues in the video section of the instructional video. [23]. A Multimodal Classification Technique (MCT) uses a transformer-based language model to identify the sort of activity being performed at each given period of the lesson. According to experimental data, audio signals are more readily recognized for certain academic pursuits, whereas text transcription is required for others. A teacher's academic efforts are recognized in the contribution.

With the rapid growth of the domestic economy, there was a growing need for skilled workers. Educators used an ant colony algorithm to develop a college English practice teaching impact assessment system based on this challenge, based on the ant colony algorithm optimized existing college English data processing [24]. Ant Colony Algorithm (ACA) advantages would evaluate college English practice teaching challenges. A better strategy for practice teaching will be devised based on the evaluation findings, therefore increasing the number of society's well-versed English speakers.

III. PROPOSED METHOD

This paper discussed the college's golden course-based English teaching evaluation to reform the teaching mode. During the building of the "golden course," teaching activities will be carried out to continuously enhance the quality of both the teaching and the course. This will ensure that an ideal effect will be realized and the primary objective of the teaching process. They may benefit much from interacting with their peers to have the courage to speak honestly and spontaneously in English. The new English curriculum includes learners joining in countless after-class team working developments. These projects include regular oral practice led by teaching assistants and rehearsing a simulated world meeting led by teams with various topics negotiated among teammates. Students have plenty of opportunities to talk to one another about their ideas and work together on these project-based assignments. Learning in a cooperative environment provides students with the feedback they need to succeed in the classroom and reduces their anxiety about confronting native teaching staff. It shortens the time for foreign teachers and student teachers to become acquainted.

The introduction of "Golden Courses" and the abolition of "Unqualified Courses" heralds a new era in educational reform. Using "Golden Courses" as a theoretical framework, the Higher Education Department outlined the qualities of "higher-order, innovation, and challenge." Private college English majors complained about college courses emphasizing "students' outcome learning." As a result, private universities must implement a major overhaul of English instruction. Due to the low levels of language proficiency and engagement in learning in private universities, the teaching design is recommended to be updated and innovated, incorporating training objectives tailored to students, thus exploring unique English "Golden Courses" and blazing a new trail suitable for private colleges. Academics have access to an instructional overview of the student-outcomebased golden course. As a result, the content and overall structure of the curriculum, teaching strategies and tactics used are all based on student progress and performance. Students demonstrated a set of capabilities after their academic careers, and this article explains how SO-GC curriculum design incorporates those competencies. When preparing for a class, it's critical to understand what students will be able to achieve. The most significant proponent of SO-GC posited the following four core ideas about the methodology: (1) firstly, everything instructors do should be geared toward helping students succeed in the future.; (2) Second, all curriculum development must be based on a clear knowledge of what students who have the chance to do so want to accomplish by the time they complete their official education; educators require (3) Complex and challenging performance standards to meet these high expectations. (4) Increasingly broad opportunities. It should be apparent that the concepts above are compatible with our minister's views. A model has been constructed by the SO-GC principles to include six aspects of the course layout (See Figure 1). Specifically, the students' development objectives and needs serve as the primary drivers of this strategy. The combination of these two factors will provide the desired learning outcomes. The learning material, the learning tasks, and the evaluation are all involved in attaining the learning objectives. The pupils will continue to advance throughout the course if they are taught in this manner.

Figure 2 illustrates the system-supported teaching interaction process within the golden course framework rather than a purely pedagogical sequence. The teaching concept of the "golden course" is designed to encourage students to reflect on the teaching process before and after class so that they may continue studying at home. English instructors' and students' capacity to tackle complicated issues and advanced thinking were increased by establishing a continuous-time to incorporate for teaching English. An enhanced consumer system is being created to assist students in obtaining the materials they require from large-scale educational resources. The elements such as login and logout represent system access control rather than instructional steps, and are retained to reflect the integration of digital learning environments into the teaching process. People put a lot of attention to the information used to provide tailored services in the past. Some examples of this technology are recommendations technology, learner grouping technology, and information-seeking future technologies. Despite its importance, the student model has been overlooked in the design of tailored services. It seems to reason that a response tailored to the specific needs of an individual student must be founded on some knowledge about that learner. Since its inception, the student model has been at the

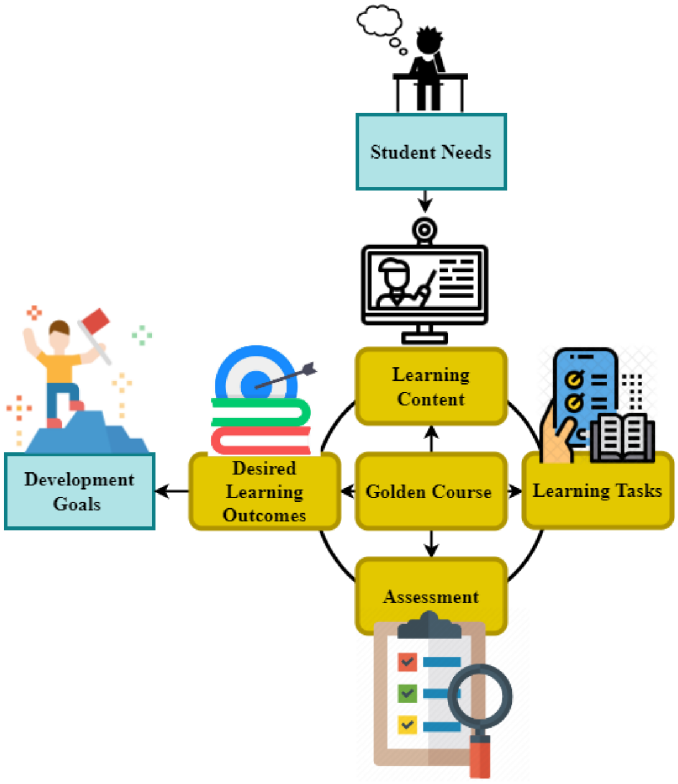

FIGURE 1. Student Outcome based on Golden Course (SO-GC)

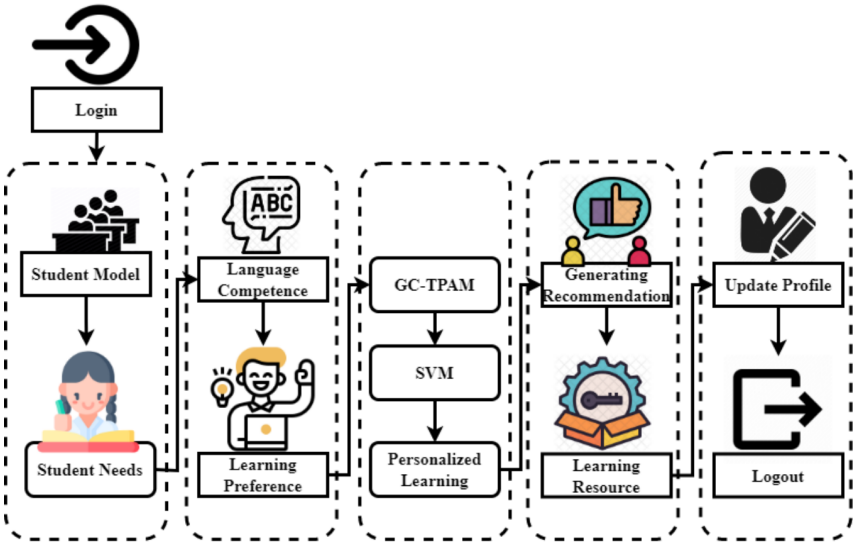

FIGURE 2. System-Supported Teaching Interaction Process

center of academic debate in this field. The learner model preserves a representation of the learner that is both explicit and dynamic. It's a visual depiction of how a computer understands a particular student. An ideal learners model would consider all elements of document-based knowledge, influencing the capacity of the user to learn and achieve. To study the data gathered from students' engagements with the course material and build student, subgroup, and classroom modeling. The student classification model was developed using machine learning to summarize individual students' midterm and final test results. Using user behavior and semantics similar to those employed, an educational model is created in this study. The student model is divided into two unique sub-models: the first of these sub-models represents the student's linguistic competency, and the second of these sub-models represents the student's cognitive qualities and preferred methods of education. The five skills of listening, talking, reading, writing, and translating are used

to assess a student's level of language competence. Student preferences could be divided into classroom interests for the higher level and major term interests for the lesser level. Heuristic approaches and line weights are employed to limit dimensionality in modeling, and the individual components are prioritized based on their weight. The designer's storage of the student's performance allows for frequent updates in response to the student's actions.

Figure 3 proposed method GC-TPAM. The first layer collects multi-source educational data including assessment scores and behavioral logs. The second layer applies PCA for feature transformation and RBFNN for evaluation modeling. The third layer integrates the evaluation outputs into a unified performance index. The final layer uses SVM to generate personalized learning recommendations based on the dynamic student model. Step 1 The assessment of English instruction is becoming more common. An innovative methodology for teaching English that relies on the concept of "golden courses" to ensure students achieve proficiency in their subjects is outlined in this article. The methodology is a hybrid of a face-to-face classroom and a formal English-language education program. Semantics are used in the system to construct a dynamic student model. Step 2: English teacher evaluations will be more accurate and less inaccurate when an ML technique is developed. An English teacher education assessment indicator is selected after the distinctive meaning of teacher education assessment and the selection processes for an English teacher education index test have been determined.

Second, the analytic hierarchy process is used to produce the assessment of the English teaching appraisal indicator using machine learning technology. After the PCA is completed, the eigenvalues and eigenvectors of English teaching performance measures may be estimated. Create a machine-learning-based model for calculating evaluation weights to get complete data for English-language teaching assessments. Step 3: The Support Vector Machines (SVMs) classifier recommends individualized learning resources based on the dynamic student model. A domain ontology-based approach for learning resource management is presented. In the classroom and online environments, the individualized learning and communication and response via synchronous and asynchronous methods enhance the student body's engagement, cooperation, and critical thinking. Employing a machine learning technique to calculate evaluation weights and collect the full findings of the English teaching evaluation. Finally, step 4 is the output of the model. The capacity to better organize and manage material and curricula is a machine learning capability. It aids in the specialization and the identification of personal strengths. Thus, it is possible to determine which tasks are most suited for the instructor and which ones are recommended for the student.

A. MACHINE LEARNING TECHNIQUE

This study develops a machine learning-based evaluation of English teaching efficacy. It is possible to utilize machine learning to develop an English teaching assessment weight mathematical formulation. Evaluating and certifying teachers in terms of classroom management, instructors are in charge of teaching rigorous discipline and promptly responding to students' inquiries; Students' eagerness to answer questions in class as measured by their RBFNN-based increase in their learning excitement is a crucial indicator of the effectiveness of the teaching techniques used in the English language classroom.

Part 1: Radial Basis Function neural network (RBFNN)

The parameterization theory is the basis of the RBF neural network. With a tremendous capacity for global optimization, it's a feed-forward neural network like no other. It is used extensively in processing applications, image analysis, and pattern recognition. An RBF neural network is used to assess the quality of English interpretation instruction in this technique. Before training, the RBF neural network's initial weights and radial basis parameters are screened using the principal component analysis approach is the network's assessment metrics.

As a consequence of the testing, efficacy and superiority have been shown. The input, output, and hidden layers are typical components of an RBF neural network. One of the two weight vectors in a Three-Layer RBFNN is a static weighted (fixed at 1) used in conjunction with a dynamical weight used in conjunction with an input signal that is a Radial Basis Function (RBF). The weight vector of the input information after activation of the functions via the hidden layer is the outcome of the output layer. This neural network relies heavily on the RBF and Dynamic Weight (DW).

$$O(LQ - D_j) = \exp\left(-\frac{\mid LQ - D_j \mid^2}{2\phi^2}\right) \tag{1}$$

As shown in equation (1) RBF dynamic weight has been determined. Where O is a radial basis function, $\mid LQ - D_j \mid$ stands for the norm of $LQ - D_j$, LQ stands for the sample data that is supplied by the input neurons D_j stand for the center of the RBF and ϕ stands for breadth, respectively. The output of the RBFNN may be represented as follows after the internet backbone weight and the parameters of the RBF have been determined:

$$X_i = \sum_{j=1}^{g} z_{ji} \exp\left(\frac{\mid LQ - D_j \mid_2}{2\phi^2}\right), \quad i = 1, 2, \ldots, m \tag{2}$$

Where z_{ji} is the weighting of both the hidden layer and the algorithm's output X_j is calculated in equation (2). The procedure of regularly updating the dynamic weight, middle, and RBF spacing by the training data constitutes the network optimization method. The solution process of the RBFNN carries out this process. This process is repeated until the whole neural network has approximated the required nonlinear function. To improve the RBFNN's effectiveness and precision in assessing the quality of English education,

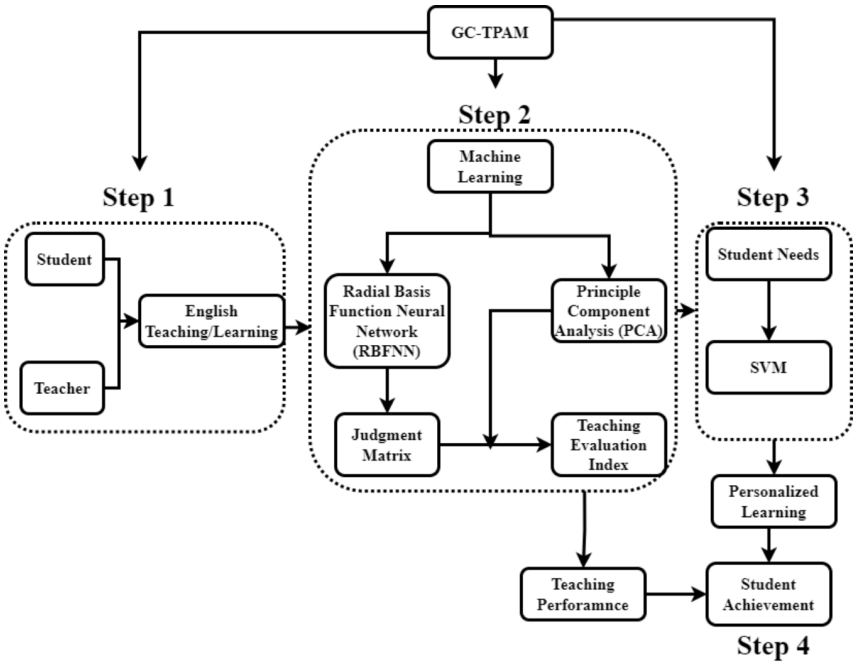

FIGURE 3. GC-TPAM

its parameters were genetically improved. This is done to increase the quality of English instruction.

The pair-wise comparison is used to sort each assessment indicator's relative benefits and drawbacks, and then the judgment matrix is constructed. The judgment matrix may be found by plugging in m implemented in various into the formula (3).

$$B = (b_{ji})_{m \times m} \tag{3}$$

As calculated in equation (3) judgment matrix has been formulated to evaluate the student performance. Where B is the judgment matrix. Perform the calculations necessary to determine the weight Z of each evaluation index. The method of calculating the reliability inspections judgment index is as follows:

$$JM = \frac{\delta_{\max} - n_b}{n_b - 1} \tag{4}$$

As deliberate in equation (4) JM judgment matrix has been computed. Where $\delta_{\max}$ is the ordering of the judgment matrix b and max is the highest eigen of the matrix b, and n_b is the maximum Eigen.

A machine learning system includes English language instruction, supervision, follow-up, training, and teach ing. This software adds text and other media, such as images, videos and PDFs. Teachers, students, parents, visitors, and publishers may all be produced differently. It keeps track of what students can and can't access, monitors their progress, and communicates with them. Courses and modules may be taken online by teachers, who can then check their students' progress reports and enroll new students. Teachers may be able to use ML to construct personalized examinations for students that can be accessed and submitted online. Students are provided with a steady and durable education due to the analysis of its benefits and the new needs. Before attempting to educate a student on a particular idea, a teacher should first educate themselves on the idea in question and become familiar with how similar ideas can be applied in the real world. This will help the teacher explain the idea in an understandable way to the student. The pupils' ability to keep themselves up to date is another significant technique to increase their knowledge. Suppose the instructor does not keep up with the most recent developments in technology. The students educated by that instructor may have difficulties once they begin working in an IT-related field. The issue may be solved, and the instructor's participation can be reduced due to the systems' design, which analyzes the market and updates the students' learning syllabus appropriately.

In this instance, the data gathering is maintained and saved using a cloud computing manner that its future use may be accessed. Cloud-based systems are maintained privately access anybody from anywhere in the world may use them at any time. This is true even if the users are located in different nations. The goal of big data is to be utilized more to grow students' knowledge than what they obtain from offline lectures. Different learning techniques (online and offline) are being taken into consideration. This implementation of active English participation in the classroom mechanism will assist in filtering the students depending on their level of understanding to enhance the students' overall learning experience. This will be done to maximize the effectiveness of the English cultural teaching process. When students are compelled by outside influences to enroll

in the class internal motivation and the incentive they get from the outside are the same. When accumulating such data, which is then stored in the differences in the learning motivation, it is possible to split it up into three distinct zones. The first relates to the aspect of value, the second illustrates the facet of expectancy, and the third discusses the aspect of emotion. Students used to arrive at school having completed degrees in various disciplines, including lower education, higher education, undergraduate, Master's degree, and finally doctoral degrees. Education in English, both offline and online in real-time, and education via the medium of English have been examined. It encompasses the teaching of English to students hailing from a variety of locations around the nation.

Many indications may evaluate the quality of English instruction. Indicators that have a poor connection or duplication with teaching quality assessment will influence the effectiveness and precision of the ultimate assessment data if these indicators are simply entered into the RBFNN without selection. With the principle component analysis method, the English teaching performance appraisal indicators will be screened to reduce the number of indications and improve their accuracy and responsiveness. In this study, PCA is not used to assign subjective weights to indicators, but to identify dominant variance structures in the dataset. The influence of each indicator is represented by its contribution to principal components with higher cumulative variance, and these contributions are then mapped to evaluation weights through a normalization procedure aligned with the data distribution. If the current English teaching quality assurance indicators are put via PCA may be thoroughly reviewed, removing any components that aren't necessary, and new indicators for English teaching evaluating the quality can be generated. The new indications drastically cut down on the quantity of data capable of containing the vast majority of the information included in the older indicators. A decrease in the number of indicators can't increase the effectiveness of the teaching quality assessment; nevertheless, this change might make the RBFNN less complicated. The following steps make up the detailed method of conducting an assessment of the quality of education based on PCA:

Assume the following comprised the first English teaching quality assessment index set:

$$Y = (Y_1, Y_2, \ldots, Y_Q) \tag{5}$$

As evaluated in equation (5) English teaching quality assessment index has been derived from identifying the teaching rate. One is denoted by the letter Q, representing the total number of instructional evaluation indicators. The statistics for the many measures used to evaluate the quality of English instruction are quite dissimilar Y= (Y1, Y2, ..., YQ) . It is vital to standardize the obtained data to decrease the influence that large amounts of data may have on smaller data. The formula for standardized processing is as follows:

$$\bar{L}_{ji} = \frac{L_{ji} - \bar{L}_i}{T_i} \tag{6}$$

$$\begin{aligned} \bar{L}_i &= \frac{1}{m}\sum_{j=1}^{m} L_{ji}, \\ T_i &= \frac{1}{m-1}\sum_{j=1}^{m}\left(L_{ji} - \bar{L}_i\right)^2 \end{aligned} \tag{7}$$

As discussed in equation (6) and equation (7), standardized processing has been described. Where L a teaching is a level evaluation with jith jth teaching quality assessment sample and the ith index and T is a student-level evaluation. m are several iterations. It has been determined that after standardized processing of the instruction performance appraisal index and computation of the evaluations index's coefficient of the correlation matrix in equation (8)

$$O = (O_{ji})_{q\times q} \tag{8}$$

where O_{ji} stands for the correlation coefficient that is found between the jth teaching quality assessment sample and the ith index, and Q is a total number of instructional evaluation indicators where the calculating technique is

$$O_{ji} = \frac{1}{m-1}\sum_{l=1}^{m} \bar{L}_{lj}\bar{L}_{li} \tag{9}$$

As found in equation (9) correlation coefficient has been evaluated. After establishing the characteristic curve δ= O, compute the eigen and the eigenvalues of the characteristic equation as follows:

$$\delta = (\delta_1, \delta_2, \ldots, \delta_q), \quad \delta_1 \geq \delta_2 \geq \cdots \geq \delta_q \geq 0 \tag{10}$$

$$V = (V_1, V_2, \ldots, V_q) \tag{11}$$

As shown in equation (10) and equation (11) V, eigenvalue and eigenvectors have been demonstrated. Determine how much each of the key components of the English teaching quality assessment index q contributes to the cumulative variance by doing the following (12):

$$\theta = \sum_{j=1}^{q} \sigma_j \tag{12}$$

As obtained in equation (12), cumulative variance θ has been founded. Where σ_j denotes the weight of the jth primary component in the overall teaching standard evaluation index, and j reflects the component's contributions. If the total combined engagement of the first m critical constituents can open the way to the final result that these m project budgets can represent all incorporated in various English teaching quality indexes, then selecting the main index can accurately describe all index data from the attempting to teach employee appraisal index. Accordingly, the most

accurate indicator of index knowledge will be selected as its key component. Because they may minimize feature dimensions without sacrificing currently receiving or the ability to evaluate English instruction's efficacy using PCA, PCA-based categories were selected as the replacement feature vector for that purpose.

In the machine learning technique RBFNN successfully decreases the dimensions of features and enhances the efficiency of assessment by using PCA-based indexes to pick a new feature vector for assessing quality in English teaching evaluation.

Part 2: Support Vector Machine

Semantics are used to build a model of student dynamics in the system. Using a Support Vector Machines (SVMs) classifier, a tailored learning resource suggestion is created using the dynamic student model. Domain ontology is used to provide a framework for managing learning resources.

Figure 4 shows the SVM-based resource recommendation. Activities that enable students to utilize language to communicate their thoughts, emotions, preferences and views are personalized learning. Because it includes genuine communication, personalization is a crucial aspect of the communicative method, in which learners share real information about themselves. A wide range of skills may be taught to pupils via a personalized education program. Individual students' skills, needs, talents, and interests are considered while implementing a personalized learning strategy. A classroom where everyone's learning approach isn't "the same" might be a better analogy. Using their existing knowledge and chosen learning style, each participant received a personalized study plan tailored to their individual needs. Because of this, their education is matched with the high expectations for all kids in their grade level's curriculum. Each learner's requirements and wants for learning tend to be unique. In most online learning, the student is described as a person with a fixed set of interests and preferences. These systems lack functionality such as the ability to customize the learning experience and monitor the input and feedback of learners. To ensure that the appropriate information is delivered to the appropriate individuals, organizations need to use various instructional methods in their instructional strategies. The importance of providing individualized assistance to students continues to grow. In education, recommendation systems ought to improve students' overall learning rate. Over the last decade, a variety of recommendation systems have been investigated. Support Vector Machines (SVMs) clasifiers were use in this study to determine which individualized educational materials should be suggested to students based on their profiles.

The Support Vector Machine (SVM) is an innovative approach to machine learning that is now being presented and is based on the computational learning theory.

Recent years have witnessed an increase in the application of the SVM in numerous classification problems. A hyperplane may be found for a collection of M vectors Y_j, $Y_j \in \pm 1$ with labels Y_j, $Y_j \in O_m$ and a mapping function $\gamma : Y \to E$ that contains the feature vector in a setting where the two classes $\alpha_1, \ldots, \alpha_m$ and $X_1, \ldots, X_m$ become promoted positively separable μ, $\rho(y_1), \ldots, \rho(y_m)$ separating hyperplane maximizing maximum margin, $\alpha_1, \ldots, \alpha_m$ and $X_1, \ldots, X_m$.

$$\mu = \sum_{j=1}^{M} X_j \alpha_j \rho(y_j) \tag{13}$$

As declared in equation (13) linear combination has been described. Get an SVM decision function that tells us which portion of the hyperplane a querying vector is shown in equation (14):

$$E(y) = \mu \cdot \rho(y) + a = \sum_{j=1}^{M} X_j \alpha_j \left\langle \rho(y_j), \rho(y) \right\rangle + a \tag{14}$$

Where equation (14) is separating hyperplane has been expressed. The categorization labeling of query Y is denoted by the expression $\operatorname{sgn} E(y)$. For the SVM to learn nonlinear relationships $E(y)$, the kernel technique is used. By selecting a kernel function L, whose induces the deep feature E by specifying the dot-product: $\langle \rho(y_j), \rho(y) \rangle$ The kernel trick of the SVMs circumvents the need to deal with the high-dimensional map ρ. This is accomplished by selecting a kernel function L as an alternative. While it is possible to solve the optimization issue by discovering the hyperplane that separates in E and the weights α_i the following

$$\max_{\alpha} \left[\sum_{j=1}^{m} \alpha_j - \frac{1}{2} \sum_{j,i=1}^{m} \alpha_j \alpha_i X_j X_i L(X_j, X_i) \right] \tag{15}$$

As explored in equation (15) optimization problem has been elaborated to enable personalized learning for students. A positive value for d is a parameter that controls the balance between maximizing the profit margin and minimizing the amount of training error. The SVM represents a novel approach to the learning system. Because of its capacity for generalization, the SVM methodology is an effective method with widespread use for tackling supervised classification issues. For example, the gap between training instances and decision borders is increased by SVM classifiers in their most basic form. As an illustrative optimization procedure in a higher-dimensional space, this goal may be referred to as maximizing the profit. The method by which the SVMs classifier provides the customized resource recommendation based on the learning model is shown in Figure 6. The algorithm can provide suggestions on the most suitable educational resource for the student based on their most recent profile information.

Figure 5 expresses the student achievement analysis. Two or more categories with no fundamental ordering are called categorical variables. Standardized tests are used to obtain

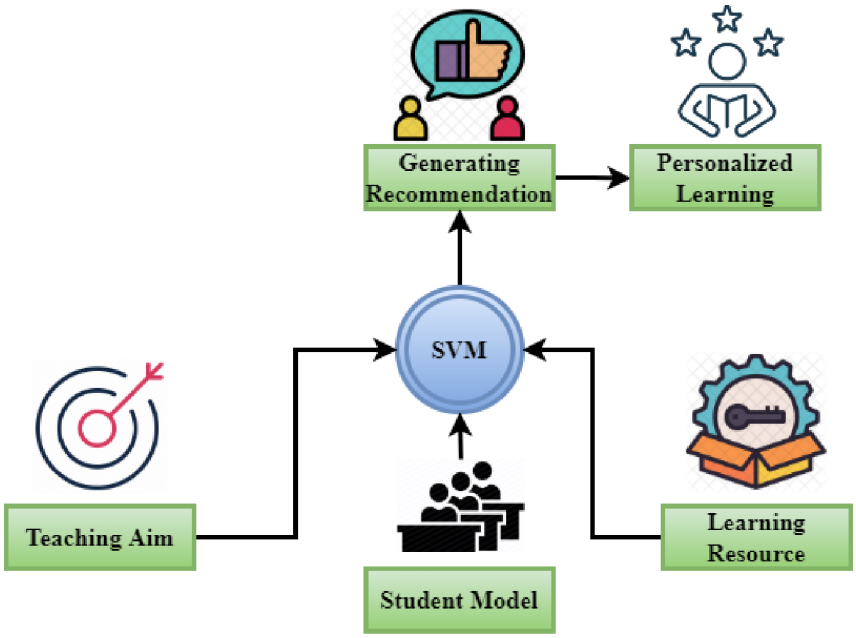

FIGURE 4. SVM based Resource Recommendation

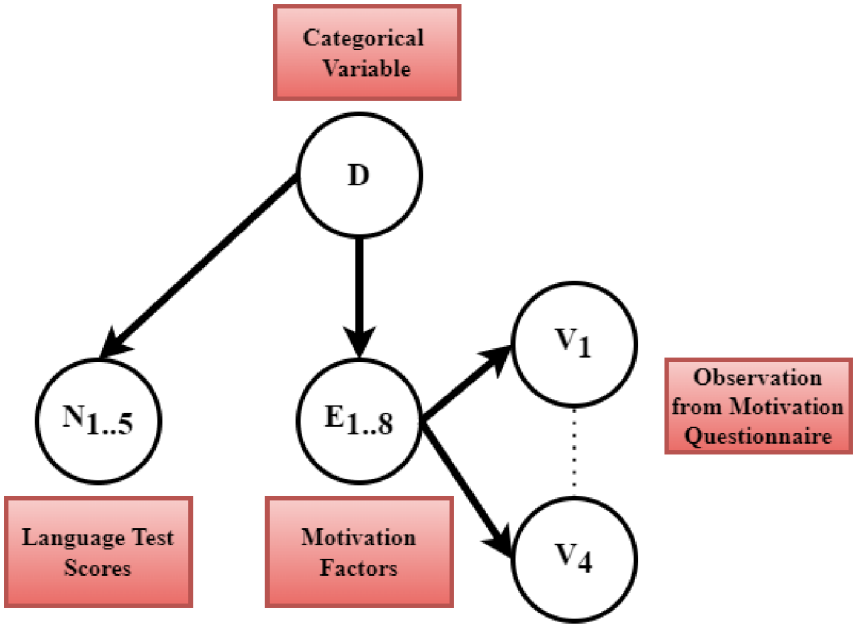

FIGURE 5. Diagram of Student Achievement Analysis

English language test results that attempt to capture a "snapshot" of the learning process at a certain developmental level. Motivation variables are any measures, incentives, rewards, or acknowledgments that increase a worker's desire to fulfill their responsibilities at work. Students' perspectives on their school education and vocabulary learning activities, as well as their reading comprehension motivations, and a variety of socioeconomic indicators, such as parental educational qualifications, employment history, and household personal belongings, were gathered using a questionnaire that consisted of 51 items is administered in English. The questionnaire has been distributed in English. The primary modification consisted of shortening each scale to include four elements, while a limited number of additional language adjustments and modifications of a minor nature were made. These were designed to tailor the scales to the environment investigated and reduce the amount of time that the participants had to commit to the experiment. Preliminary research is carried out in advance of the main investigation to check that the questionnaire would be appropriate for our population of participants. Latent variable analysis, sometimes known as "person-oriented" modeling is a method

to represent data that concentrates on the characteristics of the persons whose measurements are being collected. This analysis has been the primary one that is done. To categorize individuals into groups that share similar traits or behaviors, this research identifies concerns with endogeneity in a community. Additional benefits include uncovering previously unrecognized variance in a neighborhood. In the five experiments on language ability, the equation says for each of the individual motivational traits and the proven means may be altered due to the categorization. In the architecture, each respondent is allocated to a latent class. They are ranked according to their degree of English proficiency and their amount of effort. The approach does not presuppose that students who perform high motivation and it assumes that high-performing students will have high motivation levels. The level of motivation and proficiency, or even between specific actions, varies from class to class. The connections that were patterned are plotted in Figure 8, where D stands for a separate latent categorical data that contains L categories; $N_{1\text{-}5}$ stands for evaluated language test scores; $N_{1\text{-}8}$ stands for latent factors that symbolize motivational traits; $V_{1\text{-}4}$ stands for invariance of regression coefficients across classes collected from previous data from different motivational items in the questionnaire. It is essential to be aware of the fact that it is believed that the latent class Lmay explain not the observable test scores (N_1– N_5) the unobserved motivational features (N_1– N_8) . The discussion of the findings will concentrate almost entirely on how each latent class is described in terms of the levels they exhibit across all of these measures.

IV. NUMERICAL OUTCOME

Incorporating daily conversational English meant to mimic international conferences as two key teaching subjects has drawn a lot of attention from students. Even though they are unaware of the connection between this method and their future professional development is popular reform. The vast majority of students feel that the improved oral English class is more effective in improving learning outcomes to their overall English education than any other English classes they have taken in the past. Therefore, the revised oral English curriculum has proven to be effective and has met the initial expectation of tailoring the needs of the students to cultivate their pragmatic requirements in their future career development. This is because the oral English curriculum reform has proven efficient. The study's findings have shown that the educational reform is successfully implemented by shifting the emphasis of classroom instruction to listening and speaking in academic settings.

Dataset 1 Description: In this rather simple project, we are doing something that has not been done before. We are working on developing a new gameplay mode for this project right now. We also make an effort to apply this project to the challenges or projects that we face in our everyday lives. In a very short amount of time, we will work toward completing this project and using it to demonstrate something novel. Have a good time, and feel free to provide any constructive comments that you think might help us make this project even better and more engaging [25].

In dataset [25] analysis student performance is based on machine learning and EDA (Exploratory data analysis). Students who take a first-level materials science and engineering course like "Properties of Material" will have the fundamental information and skills to make informed decisions about the materials they use and their innovations. It's a huge deal in the materials science undergraduate program. Colleges and universities have improved the content, methodology, and teaching objectives of the Properties of Material course in the framework of the "Golden Course." teaching materials and content for Properties of Material have been enhanced to increase students' capacity for practical invention. The building of the golden course and the nurturing of students' quality in this course depend heavily on the reform and practice of golden course instruction in the teaching of the course Properties of Materials.

Dataset 2 Description: The frequency with which a word appears in a language is an essential piece of data for natural language processing and linguists. In this study, the word frequency dataset is not used as a direct measure of student achievement, but is employed to construct a lexical difficulty reference. The alignment between students' vocabulary usage in assessments and standardized word frequency levels is used to derive an indirect indicator of language proficiency. In natural language processing, very common terms are more likely to be less informative than less common ones. As a result, they are often omitted during the preprcessing stage. Users of human languages are similarly attentive to the frequency of individual words. Th e frequency with which a term is used affects how peopl e understand language[26].

i) Student Achievement Ratio (%)

The student achievement ratio is computed by integrating academic performance data with vocabulary proficiency indicators derived from the frequency-based lexical reference, ensuring that linguistic complexity is incorporated into performance evaluation. Pupils are moved to higher-level tests and academic assignments students who perform poorly are demoted to a lower level. This process ensures that the class receives the most beneficial outcome due to the appropriate dynamic hierarchical adjustment strategy. Students' formative assessment within a certain period may be recorded electronically or physically and in chronological order in students' profiles. This allows instructors to monitor student's learning progress and provide instant feedback. Students can build confidence and a feeling of accomplishment while keeping track of their long-term academic success in their portfolios.

$$\text{Achievement} = D_1 + D_2 + \cdots + D_m = 1 \tag{16}$$

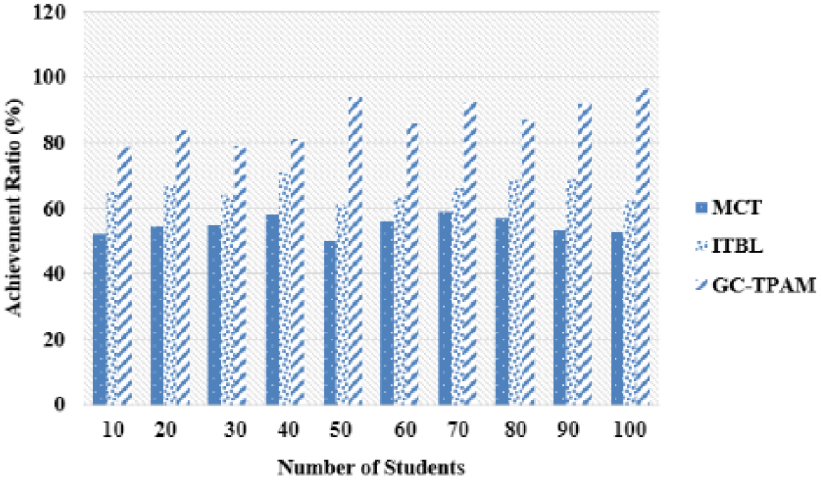

FIGURE 6. Student Achievement Ratio (%)

Figure 6 describes the dataset's student achievement ratio (%) based on the dataset [26]. In equation 16 D1 + D2 + ... + Dm= 1 denotes the collected student data. The total number of pupils and instructors in the overall aim equals one, sufficient to satisfy the publicity requirements (14). When it comes to teaching English in a classroom setting, the total number of level-2 indicators serves as the weighting factor for each level-1 index of experts, students, and instructors; Students' emotional needs, particularly their desire for affirmation and interpersonal interactions, are given considerable attention in advanced English, and the course encourages the students to have tangible, measurable, and individualized education outcomes, which boosts their sense of trust and gives them a sense of accomplishment.

ii) Student Satisfaction Ratio (%)

The standard of students' professional education in England has already been steadily raised to establish undergraduate institutions farther in the country. However, there is a tiny and unequal distribution of gradates every year. The restricted number of graduates does not match the ongoing market need for high-level, compound applied business English abilities.

Once experts, students, and instructors' aggregate survey scores are calculated, the following step is to calcu late the strength of the additional indicators for each of these groups. The overall score of the questionnaire of professionals, pupils, and teaching staff should be calculated. Now that the scoring E_{ji} of supplementary indicators has been determined, the score E_j is a total of all the secondary indicators in the fundamental indicators branch may be used to compute the primary indicators.; the total score Emay then be the total of all the major indicators. Given the n main indicators and the presence of multiple indicators that come under each of the mkey determinants that professionals, learners, and instructors have is L_1, L_2, ..., L_m the score of the j th primary indicator should satisfy the following formula.

$$E_j = E_{j1} + E_{j2} + \cdots + E_{jl_1} \tag{17}$$

As found in equation (17) and figure 7, student satisfaction has been defined based on the dataset [26]. Students are assigned countless after-class team working developments to complete as part of the GC- TPAM-based English curriculum. These projects include routine oral practice led by teaching assistants and rehearsing a simulated international conference led by teams with diverse topics negotiated among teammates. Students have plenty of opportunities to talk to one another about their ideas and work together on these project-based assignments. They gain the ability to bargain, organize, and complete the tasks that have been given to them. Their willingness to cooperate as a group has been nurtured gaining an increased understanding of how to collaborate effectively.

iii) Teaching Ratio (%)

To accurately the English teaching assessment and minimize the amount of inaccuracy within the English teaching evaluation, a method for evaluating English teaching based on machine learning has been created. Using the information gathered in previous rounds, the specific meaning of the English classroom teaching rate is determined and a notion of the English classroom teaching rate is developed. The RBFNN is utilized in the subsequent phase of the procedure to evaluate the English teaching effectiveness measurement using ML.

Figure 8 and equation 5 analyze the teaching rate using the dataset [27]. Using PCA, evaluate the impacts of the English teaching performance appraisal indicators by calculating the eigenvalues of the evaluation metrics. Create the mathematical weighting formulation for the English teaching assessment using machine learning and collect the official results of the English teaching rate.

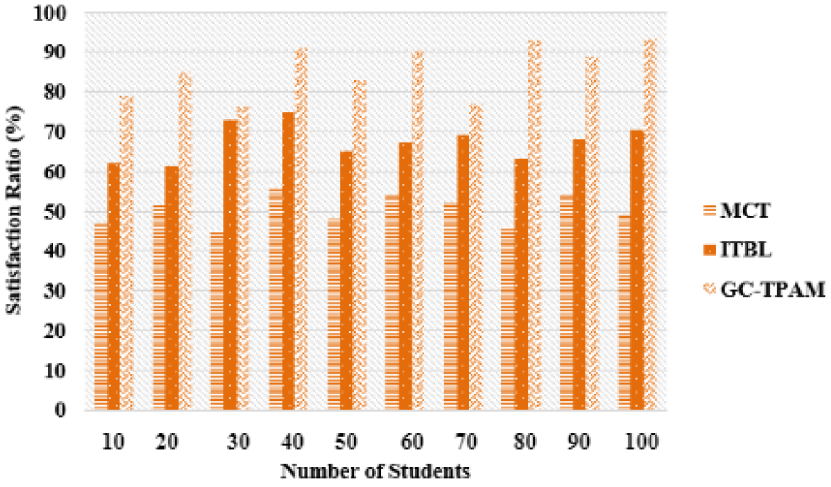

FIGURE 7. Student Satisfaction Ratio (%)

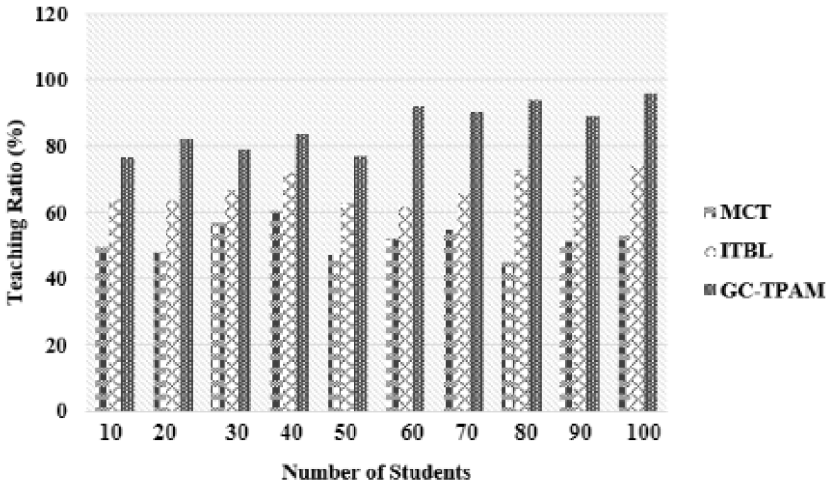

FIGURE 8. Teaching Ratio (%)

iv) Student Performance Analysis (%)

To assess the teaching methods, teaching methods, classroom atmosphere, pedagogical attitude, and students accomplishment scores of the indicators used to evaluate teachers. Effective classroom management and continuous communication to questionnaires from educators are significant determinants of the learning attitude; instructional strategies that help students expand their English teacher education horizons are important; and classroom achievement, the ability of students to respond to comments is an excellent deter minant for the understudies' learning enthusiasm. The method for evaluating and certifying teachers is called the Teacher Assessment and Credentialing Index (TACI).

Figure 9 and equation 3 achieve the student performance ratio based on the dataset [26]. Based on the suggested GC-TPAM, the educators will become aware of the areas in which they are deficient in completing the activity, which will provide them with the motivation to learn through the empowering activities. These duties involve analyzing emotive language, finding remarkable variances, and debating the moral message that the story imparts. The performance of the pupils will be evaluated using authentic evaluation when the phase of the assessment is reached. The performance of pupils in the classroom will mostly be evaluated during this lesson using the following four tools: (1) Asking inquiries. It is used to test whether or not students have understood the text, how much they know about the excessive use of chemicals, or how Carson arranges the information in this article. (2) Peer assessment. Based on the appropriate criteria, it evaluates one other pupil's written compositions and stage reading ability. (3) Portfolios. The results of the student's learning will be included in their portfolios. Writing compositions and films of the stage reading presentation will be the results; students will be able to assess their progress in learning. The instructor will be able to utilize this portfolio to grade them. (4) Quiz; after the students have learned everything in the unit, they will be given a test consisting of multiple-choice questions,

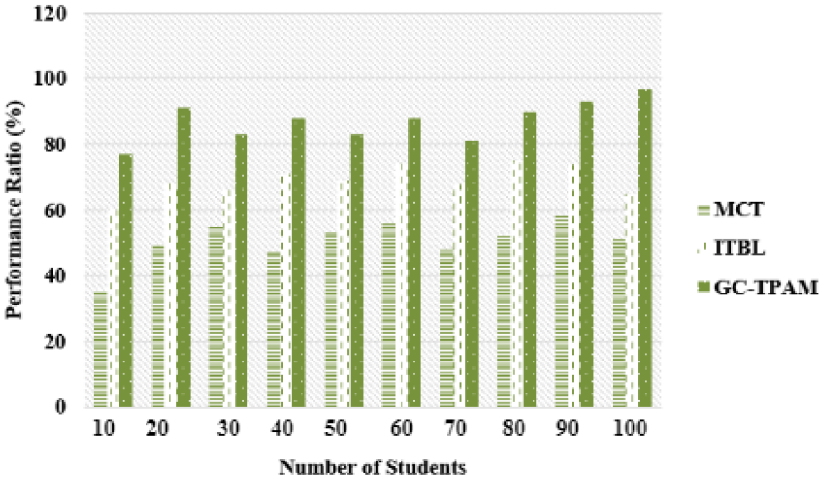

FIGURE 9. Student Performance Ratio (%)

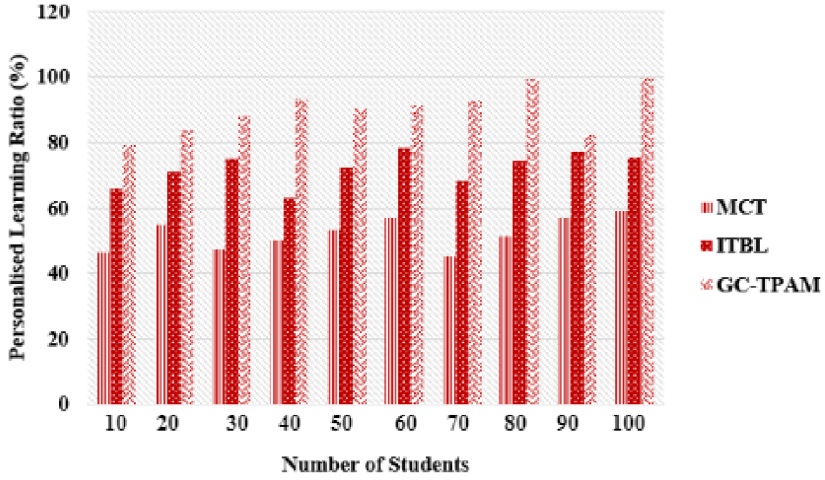

FIGURE 10. Personalised Learning ratio (%)

paraphrasing, summarizing, and translating (expressions and phrases). (5) Evaluation of past performance the purpose of this test is to evaluate the students' capacity to apply the information they have gained in the past to the solution of issues or the completion of certain activities. The reference point for performance evaluation is not a norm but rather a set of criteria.

v) Personalized Learning Ratio (%)

It is important for educators to understand that their role is shifting from that of stage actors to that of behindthe-scenes directors as they work to build a teenager stage where understudies' personal and psychological needs can be met, their personalized learning outcomes demonstrated, their personality and feelings of accomplishment cultivated, and ultimately, the ultimate goal of students' enlightenment is achieved. Accord ing to the survey findings, most educators still desire to learn deeply even though English majors at private colleges have limited proficiency in the English language. Teachers are responsible for guiding students in the appropriate direction and pique their students' potential interest in learning by meticulously designing teaching programs and assigning individually tailored tasks based on their cognitive literacy. This proposed GC-TPAM effective way for teachers to help students who have the potential to succeed academically is for them to foster their students' intellectual studies and encourage autonomous learning.

As explored in equation (13) and figure 10 optimization problem has been elaborated to enable personalized learning for the student based on the dataset [26]. A positive value for d is a parameter that controls the balance between maximizing the profit margin and minimizing the amount of training error. Based on PCA a major feature vector depending on indexes selected to improve examination effectiveness may successfully minimize the dimensions of the features while retaining the performance of the learning quality assessment.

V. CONCLUSION

The terms "golden course" and "golden lessons" emphasize successful learning results. The emphasis placed on results helps to establish crystal-clear expectations for what must be completed by the time the class. Both the students and the instructors will clearly understand what is expected of them and what they should be focusing on teaching during the course. According to the theory of student outcome learning, educators should create all of our courses based on their objectives for their student's growth. Each course should assist students in achieving certain learning outcomes. Students will undoubtedly be able to complete all of the necessary prerequisites for graduation by completing their studies. Since the student outcome learning model is intended to be a student-centered teaching method, one crucial function that instructors are expected to do is that of a facilitator. Limited findings on stratified instruction in English education need caution when making decisions. The English classroom assessment outcomes should be considered as feasible when determining indicators for future classroom teaching evaluations.

AUTHOR CONTRIBUTION

Xiaohua Su wrote the main manuscript text. All authors reviewed the manuscript.

CONFLICTS OF INTEREST

The author declares that there are no conflicts of interest r egarding the publication of this article.

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