

Retraction

Retracted: English Writing Feedback Based on Online Automatic Evaluation in the Era of Big Data

Mobile Information Systems

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

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- [1] J. Li, "English Writing Feedback Based on Online Automatic Evaluation in the Era of Big Data," *Mobile Information Systems*, vol. 2022, no. 1, Article ID 9884273, 9 pages, 2022.

Research Article

English Writing Feedback Based on Online Automatic Evaluation in the Era of Big Data

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Under the influence of the continuous development of modern information technology, the online automatic evaluation system for English writing teaching was born in response to demand. The rise of the online automatic assessment and correction system has broken through the limitations of the campus, making English writing teaching no longer restricted by time and space. Adapting to the needs of English writing development in the era of big data, making full use of modern information technology to improve writing effect, further promoting the development of educational informatization and the transformation of writing teaching, and realizing the mutual blending and innovative development of education and information technology have become the inevitable trend of future development. This paper applies the combination of teacher feedback and automatic feedback to the teaching of English writing in senior high school and discusses whether the combination of the two can change the disadvantages of the automatic writing evaluation system and solve the problem of traditional single teacher evaluation. In this paper, the text feedback system is introduced into the context information, and the context information is used to filter the difference between the active context and the active context, so as to further reduce the number of participants in collaborative filtering and improve the real-time computing efficiency of the algorithm. By distinguishing dynamic text quality indicators from stable text quality indicators, this paper proposes a similar context-aware neighborhood model. Based on experimental analysis, the accuracy of feedback results is 45.2% higher than that of the original online automatic evaluation system.

1. Introduction

The continuous development of Internet technology promotes the arrival of big data and information age, brings more convenient means to language learning, and puts forward higher requirements for foreign language teaching [1]. There are three problems in the present situation of English writing teaching, the problems of the whole teaching, the problems of teachers' English writing teaching, and the problems of the author's English writing itself, and so is the present situation of junior high school English writing teaching. There are some problems in the whole situation, such as the tendency of writing to take exams, the insufficient teaching time of writing, and the lack of systematic teaching methods for writing teaching [2]. Comprehensive English learning needs to start from four dimensions: listening, speaking, reading, and writing.

Writing is the link between the author and the reader, creating an important platform for the exchange of ideas between the two sides. Therefore, writing can best reflect the author's comprehensive language application ability, so writing is an important aspect that can not be ignored in English learning [3]. With the rapid development of information technology and network technology, various information technology methods are gradually being used in course teaching in order to improve the teaching of English writing in high school, how to conduct automatic evaluation of English writing through online methods, so as to facilitate timely assessment of the author's English writing situation. Feedback and guidance have received more and more attention from domestic experts and scholars [4]. Writing teaching has always played an extremely important role in the development of the author's English professional quality. As one of the activities that can reflect the development of

the author's comprehensive English language ability, its quality will not only affect the development of the author's comprehensive language quality, but also affect teachers' evaluation of the author's English language level [5]. As the core of process teaching method, feedback has always been the focus of foreign language teaching research. With the progress of science and technology, a new type of feedback, that is, online automatic feedback, came into being [6]. From the perspective of the function of the automatic evaluation system, the automatic writing evaluation system gives suggestions for revision of the author's composition, and the author constantly revises and improves the first draft of the composition, thus producing a certain effect on the improvement of the author's writing level. Whether the system is suitable for the current situation of domestic writing teaching and whether it can improve the writing performance of writers at different levels are all issues worth exploring [7]. Compared with teacher feedback, online automatic feedback pays more attention to the author's language expression and spelling and grammar mistakes, while teacher feedback pays more attention to the structure and content of the author's composition. Compared with online automatic feedback, teacher feedback can improve the structure and content of the author's composition more effectively. While online automatic feedback can improve the grammar and language expression of the author more effectively [8]. Teacher feedback can not solve all the author's puzzles and difficulties, lack of personalized guidance, and the author's writing feedback, which is a big problem. English should vigorously promote the integration of the latest information technology and curriculum teaching and continue to give full play to the important role of modern educational technology, especially information technology in foreign language teaching [9]. English teachers should keep pace with the times and integrate and rationally use information technology elements in the specific classroom design and implementation process. Therefore, on the basis of traditional feedback methods, network feedback has also become a new feedback method that needs to be verified over time [10]. Technology synchronized with network feedback has also brought convenient big data analysis [11]. Questionnaire questions and comparative analysis of actual operation data through the Internet can not only solve social problems and commercial sales problems, but also show the trend of personal preference in the data, so as to achieve the purpose of people-oriented analysis [12]. Based on the above research, there is no good result of English writing feedback research on online automatic assessment and correction. Therefore, this paper proposes the following innovations, hoping to achieve breakthroughs in English writing feedback research on online automatic assessment and correction under the background of big data:

- ① This paper proposes to filter clusters by using context information. In many application scenarios, the context of the project has a great influence on scoring. Therefore, this paper introduces the context information into the text feedback system and uses the context information filtering, which is different

from the active context to further reduce the number of participants in collaborative filtering and improve the real-time operation efficiency of the algorithm.

- ② Based on this, the feedback model designed in this paper further combines the nearest neighbor model and the latent semantic model to obtain the best suggestions while considering similar effects. This model establishes a model-text-feedback structure for mining model, text and feedback information, and their relationship [13]. By distinguishing dynamic text quality indicators from stable text quality indicators, this paper proposes a similar context-aware neighborhood model.

The chapters of this paper are arranged as follows: the first chapter is the introduction, which discusses the background and significance of the topic selection and expounds the innovation of the article. The second chapter of this paper mainly combines the research results of domestic and foreign big data in the field of English writing feedback research on online automatic evaluation and correction and proposes innovative results and research ideas of this paper. The third chapter of this paper is the method part, which deeply discusses the application and principle of related algorithms, and based on the previous research results, combined with the innovation of this paper, a new online automatic evaluation and correction English writing feedback model is proposed. The fourth chapter of this paper mainly discusses the experimental part of the algorithm application. Through the experimental results, on the basis of sorting out the data, an optimization model is established. The fifth chapter is the conclusion, which summarizes the research results of this paper.

2. Related Work

Ponomarev et al.'s research on the application of automatic scoring technology mainly focuses on the research on the consistency with man-machine scoring and the research on assisting classroom writing teaching. The essence of the research on assisted classroom writing teaching is the research on whether the classroom writing teaching can achieve good results and whether the author's writing level can be improved [14]. Chong et al. proposed that the automatic evaluation system and teacher feedback can be combined to form a new feedback method, and then the respective advantages of the two feedback methods can be integrated. Writing teaching provides great help [15]. The interaction between teachers and students in the writing teaching of Done and Eun is not strong. From the arrangement of teachers' compositions to the grading of teachers, teachers are the main body, ignoring the role of the author's writing subject, which leads to the writing teaching focusing on the writing results rather than the process. The lack of writing training for authors, due to the limited time in senior high school, and writing is a slow and complicated task, and teachers often reduce the arrangement of writing tasks in order to save time, resulting in the lack of writing training for authors [16]. The research of Teixeira et al. and

others shows that, in the past, the more traditional way of English writing review is usually through paper correction, which brings a large teaching burden to English teachers. Due to the large number of authors, most teachers evaluate the overall image in the review process, and the review comments are not detailed enough, resulting in the fact that even if there are errors in the composition written by the author, they can not be corrected in time. Finally, it affects the improvement of the author's writing ability [17]. Flanagan and Hirokawa believe that, from the perspective of system theory, "teaching is a control system composed of four elements: teacher, author, teaching content, and teaching means. Only through feedback information can any system form a closed loop. It is possible to achieve effective control to achieve the goal [18]. Bucher et al. are the first people to explore, record, and verify computer-based writing assessment. Because of their pioneering research, they use regression model, taking the surface features of the text as the independent variable and the paper score as the dependent variable to measure the composition, without involving content, organization, genre, etc. [19]. An and Li believe that, in the process of internationalization of college teaching, English writing is gradually playing a more and more important role in college education and teaching. Reading English literature has almost become the basic requirement of college teaching, and English writing has gradually become the focus and difficulty that both authors and teachers attach great importance to in teaching [20]. Greene et al. proposed that the system throughput is not high enough to deal with a large number of program corrections in a short time. Using a network-based distributed automatic correction system, by using a distributed model, the correction tasks are assigned to each server in the evaluation server cluster, or the function of automatic parallel evaluation of the programs to be correctly distributed on the client computers in the local area network, significantly improving the efficiency of system correction [21]. Cao believes that it provides a practical path for English writing to improve research ability and decision support service quality. English writing demand-oriented intelligent data service model and service capability evaluation system can not only optimize the process of English writing research activities, but also provide new channels and practical paths to improve the research capability, output efficiency, and service quality of English writing and also provide reference for libraries and information institutions to systematically recognize the realization method or application path of intelligent data service model in the era of big data [22]. Han's research results show that the main function of big data collection layer is to collect data related to interest and service characteristics of the client, server, and agent. It includes service requests, logs, service scores, and service description information provided by service providers, such as service annotations and service functions. These data grow rapidly and have various types and low value density, so they are called "service big data" [23,24]. The research of Utomo shows that the development of technology has made the scoring validity of the intelligent review system more and more reliable. The application of the system in the classroom

can reduce the teacher's correction burden and improve the author's autonomous learning ability and learning efficiency [twenty-four]. Pearson believes that the traditional mobile education application has some problems, such as high equipment cost, low network transmission speed, and lack of educational resources. The emergence of mobile cloud technology effectively makes up for the above-mentioned defects [25]. Piotrowska et al. and others proposed that ACM/ICPC system can only give right or wrong results and can not simulate manual correction to comprehensively score all aspects of the program. For a program that fails to pass the compilation of syntax errors and a program that will run errors only under specific conditions, the system gives the correction results of errors, and there is no detailed error reason, which greatly affects the author's programming enthusiasm [26]. The research of Gill and Khehra is based on statistical analysis of a large number of texts. LSA obtains a high-dimensional English semantic space, and words and paragraphs are represented as vectors in this semantic space. Comparing essays with known writing quality, their similarity is measured by the cosine of the included angle in the English semantic space [27].

On the basis of the above-mentioned research, this paper confirms the positive role of big data in the research field of English writing feedback of online automatic correction, constructs a genetic algorithm model combining various algorithms, makes in-depth analysis and research on the acquired and collected data by using big data algorithm, makes more effective use of the data, mines the valuable knowledge hidden behind the data, and finds out the potential problems in the research of online automatic correction of English writing feedback.

3. Methodology

3.1. Research on Related Theories

3.1.1. English Writing in the Context of Big Data. In English writing, the author is often in a state of uncertainty and self-confidence in his grammar control and word use. In particular, he hopes that the teacher can give detailed comments and modifications. Authors generally expect targeted corrections in English writing and can give more personalized evaluations based on different problems in their writing. Although teacher feedback is not as efficient and fast as online feedback, as a feedback method for forming habits in long-term education and teaching, the author's acceptance and credibility are also the highest. The advantage of online grading is not only that it can save valuable time, but also that the instant feedback realized by new technology has a positive impact on learning. In the traditional teaching mode, due to the pressure of large class teaching, many writing teachers are difficult to provide immediate and effective feedback, and the evaluation of composition is often a mere formality. The use of automatic writing evaluation system can enable teachers and students to realize real-time communication, discuss problems at the first time, and give feedback in time. The main function of the automatic evaluation system is to revise the English composition.

Within the specified time, the author can make unlimited revisions to his composition and then submit it for continuous output. Compared with the traditional teaching mode, after the application of the automatic evaluation system, not only the top students and the middle students are willing to write, but also the class participation of low-level authors will be improved, thus promoting the common progress of authors at different levels. Figure 1 is an example of a general data model structure.

The service logs corresponding to different times are different, the name of the called service (MapImage) and the service operation (GetMap) used when calling the service.

3.1.2. Research and Analysis of Online Automatic Evaluation and Correction. The reliability of the model refers to the probability that the model will run without failure in the specified operating environment and within the specified time. That is to say, the running results of the model must be consistent with the required functions and the design objectives. In the development stage of the program, it is impossible to imagine all English text input. This requires the design and development to consider the processing of illegal English text input and be able to judge whether the current program state is abnormal. In case of exception, the model can return to the normal state by calling exception processing. In the development process of the system in this paper, for each executable part, an appropriate data sample set is designed to test whether the correction result of this part meets the expectations. This can effectively reduce the probability of bugs in the system operation and greatly ensure the correctness of the system. Generally, the similarity problem occurs when correcting English compositions, which is also a common problem in the same kind of writing. Based on big data, this paper selects the nearest neighbor screening method to screen the text content. Generally, two samples with the same service are called neighbor relations, which is extremely common in the original sample-standard matrix. When two samples meet the following two constraints at the same time, they are called the nearest neighbor relationship:

$$\sigma(\text{Sim}(u_i, u_j)) > \varepsilon, \quad (1)$$

where $0 < \varepsilon < 1$.

$$\forall \text{Sim}(u_i, u_j)_k, \quad (2)$$

including $1 \leq k \leq K$. $\text{Sim}(u_i, u_j)$ represents the similarity between two samples, and $\sigma(x)$ is used to further map the similarity to the $(0, 1)$ interval. A parameter $\varepsilon (0 < \varepsilon < 1)$ is introduced into the model to remove neighbors not greater than ε in the sample text. The typical value of ε can be 0 or 0.1, etc. $\text{Sim}(u_i, u_j)_k$ is the u_i largest similarity value after calculating the similarity value between k and all its neighbors. Obviously, the asymmetric neighbor relationship makes $\text{Sim}(u_i, u_j)_k$ and $\text{Sim}(u_j, u_i)_k$ have different meanings. The expression at this time is

$$N(s_i) = \{s_j | \sigma(\text{Sim}(s_i, s_j)) > \varepsilon, 1 \leq k \leq K\}. \quad (3)$$

Therefore, when the nearest neighbor selection method is satisfied, the expression relationship between them is

$$u_{i,k} \longrightarrow u_i \text{ or } u_j \longrightarrow u_i. \quad (4)$$

Using the above formula, this paper constructs the adjacency matrix as shown in Figure 2. The method of selecting the nearest neighbor according to the parameter ε will obviously meet the needs of actually correcting the article, so as to avoid the problem of repetition or similar unrecognizable.

The online English composition system that supports correction adopts the currently popular three-tier architecture based on B/S and performs hierarchical processing on the system, so that each layer is relatively independent, and changes in each layer will not cause other layers to be too large. The change fully reflects the encapsulation characteristics of object-oriented programming and provides convenience for adding system functions and expanding the system. The three-tier structure of this system is interface layer, transaction logic layer, and data access layer. Automatic writing evaluation system is a feedback way to judge and score learners' writing by using modern computer technology under the guidance of constructivist learning theory and process writing theory. Figure 3 shows the basic framework of the three-tier architecture.

Multiple feedback theory can also be called multiple feedback teaching method, which contains many theoretical viewpoints in different teaching methods, so multiple feedback theory is a comprehensive theory. The multiple feedback theory started early abroad and has been applied to various industries. Thomas et al. published an article on the application of the multiple feedback model to teaching. From this point of view, the multiple feedback theory has been recognized and valued by Western countries. At the same time, it is not only in education. It has also made great achievements in medicine and sports. Paying attention to the author's writing process in writing is an important stage to effectively improve the author's writing level. Under the background of traditional teaching, teacher feedback has been recognized by most authors, but under the background of the rapid development of contemporary education, teacher feedback has exposed many problems, for example, first, the efficiency of teacher feedback. At present, the teaching tasks of senior high school English teachers are complex, and the time for teachers to correct their compositions is limited. Usually, the author has blurred the content he once wrote, and his interest in revising has decreased. The basic principles of process writing theory are author-centered, focusing on the writing process, and emphasizing the development of the author's ability. Both the design of writing instruction and the arrangement of writing tasks are author-centered. At the same time, unlike other theories that focus on results, this theory focuses on the author's writing process and content. Finally, this theory also focuses on cultivating the author's ability to revise repeatedly, and the ability to think creatively.

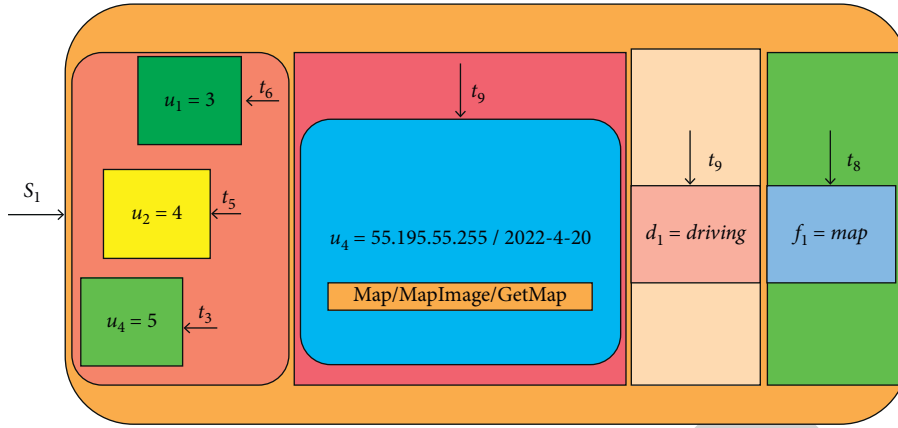


FIGURE 1: General data model structure example diagram.

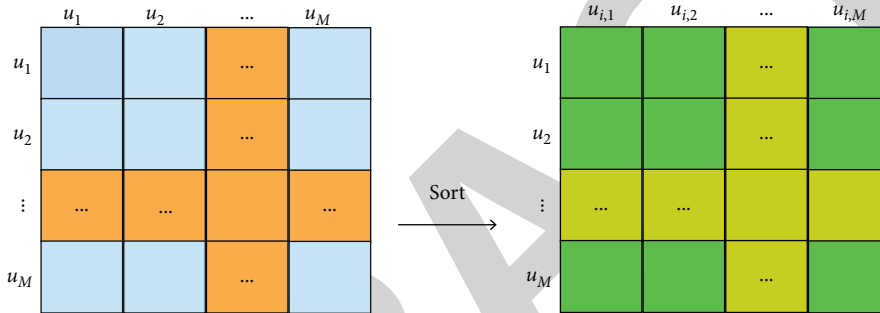


FIGURE 2: Adjacency matrix basic model diagram.

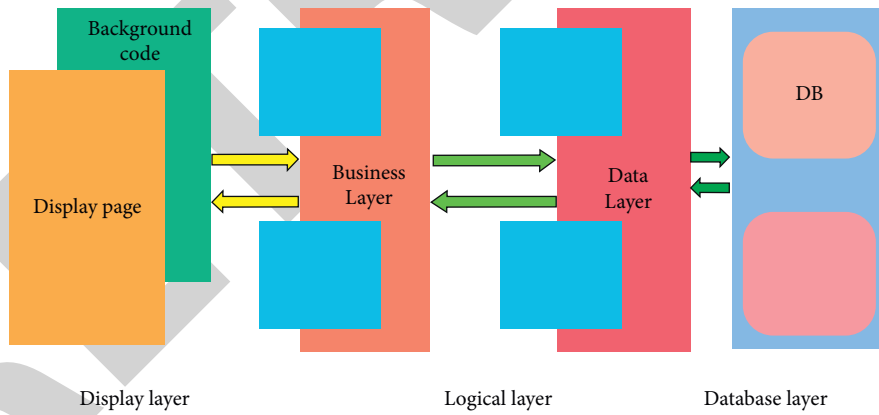


FIGURE 3: The basic framework of the three-tier architecture.

3.2. *Research on Algorithm of Feedback System Based on Big Data.* In this paper, Jaccard similarity coefficient is used to calculate the tag similarity between services. Jaccard similarity coefficient is an index to measure the similarity of two sets, which is defined as the proportion of intersection elements of two sets in their union. Jaccard similarity coefficient has intuitive meaning: when there are no same elements in the tag stem set of two services, the tag similarity is 0; if all elements in the set are the same, the label similarity is 1. The formula for calculating the label similarity between

services s_i, s_j based on the Jaccard similarity coefficient is as follows:

$$T_sim_{i,j} = \frac{|T'_i \cap T'_j|}{|T'_i \cup T'_j|} \quad (5)$$

in which T'_i, T'_j are the tag stem set of services s_i, s_j . When $|T'_i \cap T'_j|$ is larger, the greater the tag similarity s_i, s_j between services $T_sim_{i,j}$, that is, the more repeated elements in the tag stem set of s_i, s_j , and the greater the tag similarity

between them. It is a factor to ensure that the label similarity is within the $[0, 1]$ range. If there are no identical elements in the text sets of the two services, the text similarity is 0. If all elements in the set are the same, then we have the following:

$$F_sim_{i,j} = \frac{|F'_i \cap F'_j|}{|F'_i \cup F'_j|} \quad (6)$$

The feature similarity between services s_i, s_j is synthesized by the weighted addition of its label similarity and text similarity. The calculation method is as follows:

$$C_sim_{i,j} = \alpha \times T_sim_{i,j} + \beta \times F_sim_{i,j} \quad (7)$$

In the above formula, $\alpha \in [0, 1]$ is the weight of label similarity, $\beta \in [0, 1]$ is the weight of text similarity, and there are $\alpha + \beta = 1$. At this time, it can be ensured that the feature similarity $C_sim_{i,j}$ will still be within the range of $[0, 1]$, where the weight value represents the relative importance of tag similarity and text similarity.

Among the model-based collaborative filtering methods, the implicit meaning model and its approximate model are the most typical representatives. This series of models realizes the calculation process of traditional singular value matrix decomposition based on Quasi-Newton method. After filling the data of the original sparse matrix, it is expressed as the product of simple matrix. The general expression is as follows:

$$\begin{aligned} R &\longrightarrow (Fill) \longrightarrow R' \longrightarrow R' \\ &= U^T S V \longrightarrow R' f \\ &= U_f^T S_f V_f. \end{aligned} \quad (8)$$

Obviously, in the above calculation, it is necessary to strictly control the data filling in the process of data processing. As online automatic evaluation is generally concentrated in a certain period of time, it is impossible for the general model to bear the complexity and data processing in the corresponding time. Matrix analysis is a basic method of hidden semantic model, which is easy to realize. Its characteristic is to infer the text scoring mode through the attribute set of text and model. Both the model and the text are mapped to the same dimension of the semantic space. Each model is associated with a vector and the vector of each text j , and then, the model text interaction is modeled as the feature in the space and predicted by the score of the model i text j . The expression looks like this:

$$\begin{aligned} \hat{T}_{ij} &= p_i^T q_j, \\ &= \sum_{g=1}^f p_{ig} q_{jg}. \end{aligned} \quad (9)$$

The above model is based on the basic singular value decomposition (SVD) method, where f is the influencing factor between model setting preference and text features. On this basis, the evaluation can be regarded as an advanced vocabulary input model, resulting in an advanced vocabulary set B_i , where $w_{i,j}$ is the B_i word in j . The frequency of calculating $w_{i,j}$ for this purpose is as follows:

$$tf(w_{i,j}) = \frac{N(w_{i,j}, B_i)}{|B_i|}, \quad (10)$$

where $N(w_{i,j}, B_i)$ is the number of times, $w_{i,j}$ appears in B_i , and $|B_i|$ is the number of all words in B_i . The reviewer can judge the quality of the article according to the frequency and number of words written by the reviewer. In reviewing an article, the author should be a participant and collaborator of the review feedback. The online composition review system should start from the author's learning effect and learning experience, not only paying attention to the author's mastery of language knowledge and skills, but also making the author experience progress and build self-confidence in the writing process through evaluation and feedback.

4. Result Analysis and Discussion

Based on the above analysis and research, this paper proposes to establish an online automatic feedback model of English writing evaluation based on big data. In order to test the scientificity, feasibility, and accuracy of the model, this paper will analyze the model from the aspects of the average error reduction rate of text processing, the filtering efficiency of interference items, the text analysis efficiency, the feedback effect optimization rate, and the feedback result accuracy and reliability. A1, A2, and A3 ($A1 > A2 > A3$) are selected as the experimental samples of three different English composition sample sets in terms of average error and interference filtering efficiency. The experimental analysis diagrams are shown in Figures 4 and 5.

In the two indicators of the above analysis, it can be seen that the average error reduction rate and the filtering efficiency of interference term fluctuate greatly. This is due to the index error caused by the data processing concentration, but from the point of view of the average error reduction rate, the reduction of the evaluation error by the model is obvious. Although the reduction rate is different for different number of sample sets, according to the experiment, it is basically stable at 63.4%; this is a fairly high error reduction rate, which can avoid most of the evaluation errors and biases caused by the model itself. On the analysis of the filtering efficiency of interference terms, it can be observed that an intersection point is obviously between the interval 3-4. Because the three sample sets selected in this paper have a quantitative relationship $A1 > A2 > A3$, but in that quantity, there is the filtering efficiency of the same interference item. This is because the filtering algorithm is embedded in the model, and the same interference item will be directly extended to other sample sets. Therefore, for any set of three sample sets, as long as this occurs, the same interference item in the subsequent modified sample set will be filtered directly, no more calculations. Therefore, the filtering efficiency of interference items can be improved to 60.7%. Let C1 and C2 be the two text sets in terms of text analysis efficiency, feedback effect optimization rate, and feedback result accuracy, and the advanced vocabulary and sentences

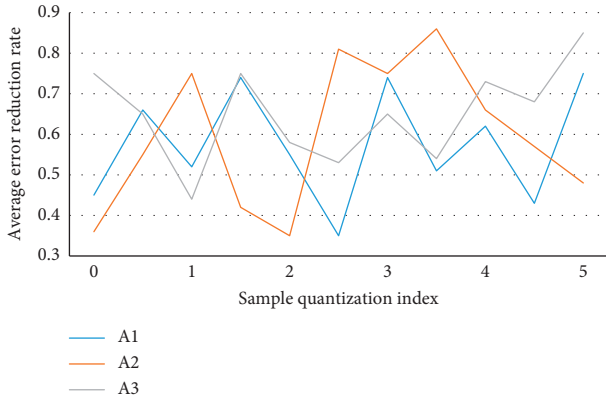


FIGURE 4: Analysis of average error reduction rate.

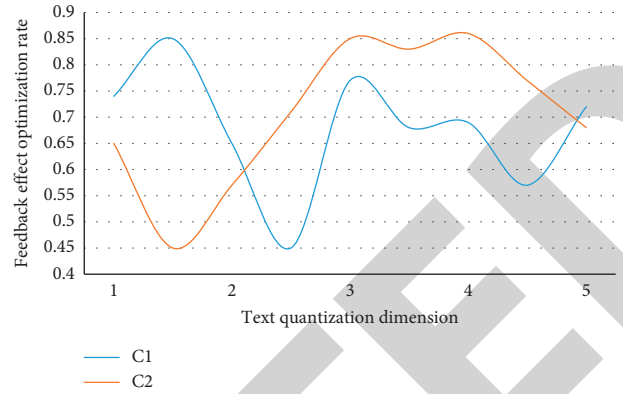


FIGURE 7: Analysis of feedback effect optimization rate.

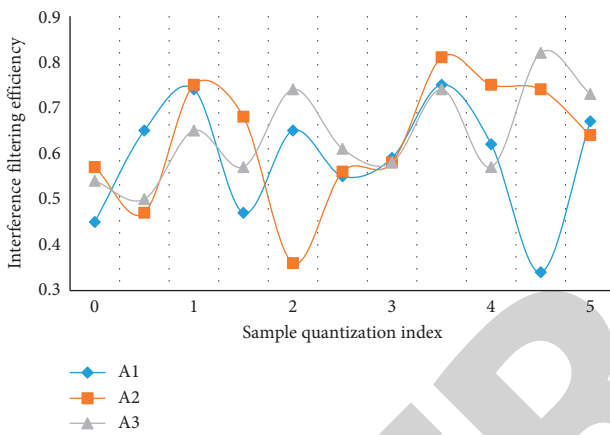


FIGURE 5: Analysis of filtering efficiency of interference items.

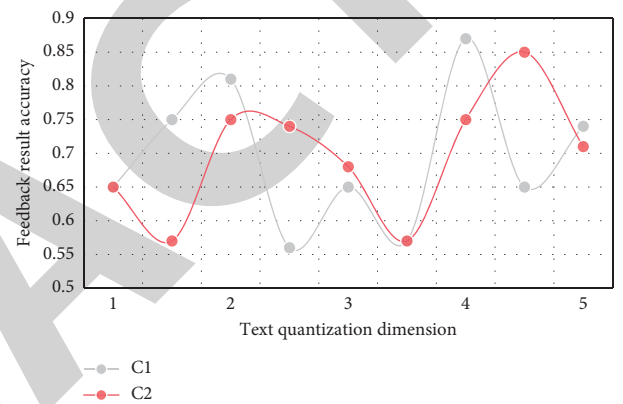


FIGURE 8: Analysis of the accuracy of feedback results.

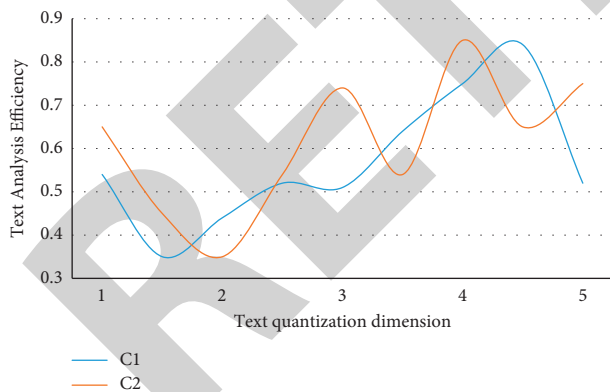


FIGURE 6: Text analysis efficiency analysis.

in C1 are lower than the frequency in C2. The data graphs of its analysis are shown in Figures 6–8.

By comparing the above three parameters, it can be found that the processing capacity of the model remains basically stable on different measurement axes, and in most cases, it maintains the same increase or decrease trend in the sample set, which is extremely important for a feedback system. This is even more evident in the analysis efficiency of the text. Although C2 appears to fluctuate slightly in

magnitude, the overall trend remains the same as C1. In the feedback effect optimization rate, under the data of multiple experiments, it can be obtained that the feedback effect of the online automatic evaluation and modification model is above 40% under normal circumstances and is stable at about 66.8%. On this basis, the accuracy of feedback results is also guaranteed, which reflects the effect of feedback content. The experimental results show that the accuracy of feedback results fluctuates around the average line of 68.9% in the experiment, which is 45.2% higher than the original online automatic evaluation system.

5. Conclusions

This paper has carried out research based on big data by applying the automatic English composition evaluation system to English writing evaluation. The purpose of this paper is to explore the current situation of model feedback in English writing teaching, the effect of the application of automatic evaluation system in English writing teaching, and whether the application of automatic evaluation system in English writing teaching can improve the author's writing level and learning motivation. At present, the online automatic evaluation and correction system is still in the stage of man-machine coupling. If, in a standardized test, a model rater is used to replace one of the necessary human raters,

the essay will be flagged and forwarded to another human rater for further evaluation; if the model disagrees with the human rater, then it can not only ensure the quality of scoring, but also improve the efficiency of scoring. Moreover, the relationship between model feedback and author's participation is not a one-way causal relationship, but a cyclical interactive relationship under the interaction of multiple factors. In the process of interaction between the two, the ultimate goal of model feedback is not to promote the author's participation, but to promote the participation of the author's cognition, emotion, and behavior as an intermediary and to improve the author's English writing ability. However, according to the experiment, the error reduction rate of the model is basically stable at 63.4%, and the feedback effect of the online automatic evaluation model is more than 40%, stable at about 66.8%. The accuracy of feedback results is 45.2% higher than that of the original online automatic evaluation system.

Data Availability

The figures data used to support the findings of this study are included in the article.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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