Retraction

Retraction: Research on the Integration of ESP and Big Data in Modern College English Teaching (J. Phys.: Conf. Ser. 1852 022046)

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The authors of the article have been given opportunity to present evidence that they were the original and genuine creators of the work, however at the time of publication of this notice, IOP Publishing has not received any response. IOP Publishing has analysed the article and agrees there are enough indicators to cause serious doubts over the legitimacy of the work and agree this article should be retracted. The authors are encouraged to contact IOP Publishing Limited if they have any comments on this retraction.

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Research on the Integration of ESP and Big Data in Modern College English Teaching

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Abstract. In the context of big data, it analyzes ESP-based college English teaching. First, it explains the big data theory in ESP, and then discusses the resource discovery service, information storage service, resource organization service, and information retrieval service of English teaching. On the basis of the service content of ESP in college English teaching, it expounds the self-learning mode of college English based on ESP theory from the aspects of one-stop resource service, subject knowledge service, information visualization service and smart service.

Keywords: ESP, Big Data, Modern College English Teaching

1. Introduction
At present, with the gradual deepening of the development and application of information technology, mankind has completely entered the information age based on "big data". In the context of the development of data quantification and isomerization, it has never been easier for people to obtain information. ESP theory has completely changed the information service mode of traditional libraries, and thus can also provide users with more convenient and rich information in the inquiry and self-service teaching of college English. In the context of big data, how can English teaching efficiently and accurately extract the information that users need from these massive data, and encapsulate the information in a form that is easier for users to accept and understand, and finally present it to users, thereby constructing a new type of teaching mode is an urgent problem to be solved.

2. Overview of big data and esp theory
"Big data" refers to a technical system that scientifically manages and utilizes massive amounts of data. It includes not only the quantity and huge scale of data, but also the discovery of its inherent value through the collection, processing, and analysis of these data. The outstanding features of big data include: (1) huge data scale; (2) diversified data structure; (3) new data processing mode; (4) low value density. Big data realizes information processing through the following steps: (1) data collection; (2) data analysis; (3) data interpretation [1-3].

The algorithm for bringing big data into college English teaching is the Monte Carlo algorithm,
such as:

$$E^n = \sum_{k=0}^{n} [x(m) \cdot w(n - m)] \cdot (x)^2$$

The above formula can be simplified to:

$$E^n = \sum_{k=0}^{n} [(x)^2 w(m) \cdot w(n - m)] = (x)^2 w \cdot w(n)$$

Figure 1. Pi calculated by Monte Carlo simulation

ESP (English for Specific Purposes) is a special type of English course designed to teach professional languages for certain fields (such as business, technology, medical, military, etc.), as well as the communication skills required for each language. The history of ESP is not long: it can be traced back to the end of World War II, when the unprecedented development of world science, technology and economy led to English becoming an international language. During the oil crisis in the 1970s, this trend became more intense. Another important moment is that people are increasingly aware that English can be adjusted to meet the needs of students according to different situations [4-6].

In the late 1960s and early 1970s, people tried more scientific and technical English design courses. In recent years, significant progress has been made in establishing courses centered on students in military academies, which can provide specific target groups with the necessary knowledge for use in special professional environments. ESP continues to develop in several different ways, which are basically related to:

- Increasing attention to learners, not only paying attention to the recent needs and needs of learners, but also paying attention to future needs and needs.
- Move towards a negotiation or process-oriented syllabus, allowing students to actively participate in determining the overall goals, content and progress of the course;
  - Continue to focus on personal learning, learner centrality and learner autonomy;
  - Move from ESP textbooks to more eclectic Material method, the focus is to carefully select materials to meet the needs of learners.
- Continue to attach great importance to target situation analysis and needs analysis, and adopt more objective methods to evaluate and evaluate courses after course delivery (Graves 2000).
3. College English teaching based on big data and ESP theory

Teaching methods can improve students' comprehensive quality and innovation ability. Digital libraries can expand their own information service content under the background of big data, thereby opening up new horizons for college English teaching. English inquiry learning requires searching and locating required information in the massive digital world. The services that big data can provide include the following aspects [7].

The most important thing in English teaching is big data processing. Generally, Spark is used for distributed computing. Hadoop and Spark are currently commonly used distributed computing platforms. In comparison, Spark has the characteristics of fast speed, wide application range, and scalability. Spark uses its own flexible distributed data set (RDD) mechanism to store the intermediate results of operations in memory. When encountering multiple iterative operations, the computing time overhead of Spark is much smaller than that of Hadoop. In addition to its own resource scheduling framework mechanism, Spark can also use Hadoop's resource scheduling framework to run. Therefore, Spark can fully meet the teaching big data processing requirements. In this computing framework, the Spark platform provides a distributed parallel processing mechanism that can efficiently extract data features.

Distributed Algorithm (“DA”) is an emerging meta-heuristic optimization algorithm that imitates the group behavior of dragonflies to optimize the global and local areas. Group behaviors of dragonflies can be divided into five types: separation, alignment, gathering, foraging, and avoiding enemies [8-10].

3.1 Separation. The degree of separation between a single dragonfly and adjacent dragonflies is expressed by equation (1).
Where: \( S_i \) refers to the separation between dragonfly \( i \) and its adjacent dragonfly; \( X \) refers to the spatial position of dragonfly \( i \); \( N \) is the total number of dragonflies; \( X_j \) refers to the position of adjacent dragonfly \( j \).

### 3.2 Alignment.

The alignment speed \( A_i \) between a single dragonfly and the adjacent dragonfly is expressed by equation (2). Where: \( V_j \) refers to the speed of the adjacent dragonfly \( j \).

\[
A_i = \frac{\sum_{j=1}^{n} V_j}{N}
\]

### 3.3 Gather.

The concentration \( C_i \) of a single dragonfly and adjacent dragonflies is expressed by equation (3).

\[
C_i = \frac{\sum_{j=1}^{n} X_j}{N} - X
\]

### 3.4 Foraging.

The foraging ability \( F_i \) of a single dragonfly is expressed by equation (4).

\[
F_i = X \pm X
\]

### 3.5 Avoid the enemy.

The dragonfly individual's ability to avoid foreign enemies \( E_i \) is expressed by equation (5).

\[
E_i = X \pm X
\]

In the formula: \( X \) refers to the position of the natural enemy, that is, the worst position of the dragonfly to avoid the enemy. The dragonfly constantly adjusts the step length \( \Delta X \) and the air position \( X \) in the above behavior. The algorithm is similar to this, until the number of iterations is satisfied and the optimal solution is found. When there are other dragonflies near a single dragonfly, the expression for its position and step length update is:

\[
X_{t+1} = X_t + \Gamma(z) \Delta X = \int_{0}^{\infty} t^{\gamma-1} e^{-t} dt = \frac{e^{-\gamma z}}{z} \prod_{k=1}^{\infty} \left(1 + \frac{z}{k}\right)^{-1} e^{z/k},
\]

In the formula: \( \gamma, a, c, f, e \) respectively refer to separation weight, alignment weight, cohesion weight, foraging factor, natural enemy factor; \( \Delta w \) refers to inertia weight; \( t \) refers to the number of iterations. When there are no other dragonflies around the individual dragonfly, use the Lévy function to adjust the position of the dragonfly so that a single dragonfly can quickly find a group.

### 4. Simulation experiment and result analysis

The experiment design is based on the English teaching data of X Academy, including online teaching data, classroom teaching data, experimental teaching data, teaching data, grades and evaluation data, etc. In order to simulate the calculation accuracy and speed of a large amount of data, 2.5 million pieces of data are generated on the basis of the original data amount using code generation technology. According to the teaching quality score in the teaching system, the correct rate of the DA-BP algorithm predicting the teaching quality score under the Spark framework is tested. The computer
configuration used in the experiment: ThinkServer RD650, processor E5-2609v4, 32 GB internal memory, 8T hard disk. Using linux operating system, Spark1. 2. 0 version. The experimental data is about 1. 2 G.

4.1 Simulation result
Normalize the collected teaching big data, using 70% of the total data for training and 30% of the total data for testing. According to the characteristics of teaching data, 16 neurons are extracted, and the neuron that outputs the value of teaching quality is 1. The number of populations in DA is 20, and the maximum number of iterations is 900. Finally, the DA-BP algorithm running results and the GA-BP algorithm running results in literature are compared with the actual values [11-13].

The calculation result shows that the teaching quality value obtained by the parallel DA optimized BP neural network algorithm has a large error with the actual teaching quality value in the initial stage, but as the number of iterations increases, the accuracy of the calculation result is also After increasing, the number of iterations increased to 450 and stabilized, and the final average accuracy rate reached 96%. The DA algorithm has better global and local search capabilities, which can help the BP neural network to quickly find the optimal solution, thus improving the accuracy of the algorithm. The GA-BP algorithm has the highest accuracy rate when the number of iterations reaches 375, and then as the number of iterations increases, its accuracy rate decreases. This is because the GA algorithm itself is relatively complicated, and as the number of iterations increases, its computing performance tends to decrease. From the experimental results, the accuracy rate of DA-BP algorithm is higher than GA-BP algorithm.

4.2 Calculation result
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5. College English teaching service based on ESP
The steps to study progressive teaching should be as follows: We should first make it clear that both general English and English for specific purposes play an equally important position in English teaching. General English is for the purpose of teaching language skills, exploring the general phenomenon of the English language, and training students' basic language skills; English for specific purposes is related to a specific profession and subject, and aims to cultivate English as a medium for a certain profession Ability to communicate and apply subjects. In contrast, English for specific purposes is more targeted and practical. Only by organically combining the two and integrating the concept of quality education throughout the teaching process can the ultimate goal of college English teaching be truly realized. Secondly, build a teaching staff system that meets ESP standards. The first is English teachers. They are basically graduates from English majors with solid basic English skills, but they have little or no knowledge of the professional knowledge background involved in ESP teaching, especially science and engineering knowledge. ; The second is professional course teachers with a certain English foundation, most of them are very familiar with professional knowledge and can also master relevant professional English vocabulary, but the basic language skills are relatively weak, which affects the effect of classroom teaching to a certain extent.

There are many research papers on ESP teaching methods by scholars at home and abroad. Professor Li pointed out: “While college English focuses on developing students’ general language ability, they should further enhance their academic or professional English communication skills and cross-cultural communication skills to enable students To be able to communicate effectively in English in different fields or contexts such as daily life, professional studies and professional positions.” We believe that under ideal circumstances, college-level students will use them at least on
the basis of reaching the pre-intermediate level. General English knowledge and obtain specialized English terminology English proficiency, and it is important to have certain experience in obtaining military expertise. For most language theorists and methodologists, any contemporary discussion on ESP teaching starts with addressing the following important aspects:-the difference between general undergraduate English teaching general English and undergraduate military teaching professional English;-in ESP courses The importance of needs analysis in design;-Different methods for effective learning and teacher roles;-Selection, introduction and practice of ESP materials. There seems to be few descriptive or research aspects of the literature on language learning in the military or ESP courses for the military [14].

Clarify the status of ESP teaching. We should first make it clear that both general English and English for specific purposes occupy an equally important position in English teaching. General English is for the purpose of teaching language skills, exploring the general phenomenon of the English language, and training students' basic language skills; English for specific purposes is related to a specific profession and subject, and aims to cultivate English as a medium for a certain profession Ability to communicate and apply subjects. In contrast, English for specific purposes is more targeted and practical. Only by organically combining the two and integrating the concept of quality education throughout the teaching process can the ultimate goal of college English teaching be truly realized.

This form of special purpose education combined with ESP theory solves the problems of military personnel and local personnel in the military structure of our country in the "military-civilian integration" from a long-term perspective, for example, in terms of job prospects, positions, promotions, and salaries; taking into account geographic location. With the development of politics (recently or not), it can be said that if military operations of the highest standards are not carried out professionally, ESP will have serious social consequences. First of all, it is worth noting that the military ESP curriculum design and all the aforementioned elements are affected by the development of the international environment. Although the content, level, teaching materials, etc. of the courses need to be constantly changed and adjusted, people cannot help but notice the progress made in this field in recent years. As mentioned above, the military English course is a good example of ESP courses held in military academies.

Second, according to the General Chinese University Reference Framework (CEFR) description, this type of professional foreign language education strictly follows the ESP curriculum design process and is aimed at students from intermediate (A2) to advanced (C1) levels. In a military environment, an alternative but similar scale is used. Military English courses are designed in accordance with the provisions of the MELT framework 17, fully complying with the ESP principles and the requirements of the teaching language of universities. Therefore, MELT courses are a special type of ESP and are the product of this joint effort. The skills involved in developing course content are listening, reading, speaking and writing. At present, the teaching of ESP military English in military academies should focus on cultivating students' practical communicative skills.

In addition, the current ESP teaching gives full play to the role of the assessment baton, which can lead the classroom, lead the teaching of the faculty and the learning of the students, and make the teaching closer to the ability and the direction of teaching. We should not blindly assess the students' English knowledge, but should focus more on assessing the students' ability to use knowledge, that is, using non-standardized assessment methods. In the assessment, students are given space to think. There are no standard answers to the questions set. The students' active learning ability, deep understanding ability, high-level thinking, critical spirit and teamwork ability are fully assessed. These abilities should be the core abilities of the trainees that the ESP military English course should cultivate, and the abilities that our military should have in the future. The core of the evaluation of English courses in military academies should be to promote the development of ESP English, emphasizing the important value of English in cultivating students' inquiry ability, problem-solving ability and promoting the development of students' personality.
6. Conclusions

Big data technology is still undergoing continuous development, and related systems and standards are still in the process of continuous improvement. Building an ESP theoretical service system based on big data that meets the needs of user information query and retrieval is a systematic project and requires unremitting efforts from all aspects. At present, big data as a standard mass data analysis and acquisition mechanism is receiving widespread attention, and there is no formal ESP theoretical construction standard based on the big data system in my country. This paper designs a resource service model for English learning based on ESP theory based on big data, which has good practical value for the reform of college English teaching and the development of ESP theory.

References

[1] Dudley-Evans T. Genre analysis: a key to a theory of ESP[J]. Ibérica, Revista de la Asociación Europea de Lenguas para Fines Específicos, 2000 (2): 3-11.
[2] Dudley-Evans T. Genre analysis: a key to a theory of ESP[J]. Ibérica, Revista de la Asociación Europea de Lenguas para Fines Específicos, 2000 (2): 22-40.
[3] Aiguo W. Teaching aviation English in the Chinese context: Developing ESP theory in a non-English speaking country[J]. English for Specific Purposes, 2007, 26(1): 121-128.
[4] Alderson J C. New procedures for validating proficiency tests of ESP? Theory and practice[J]. Language Testing, 1988, 5(2): 220-232.
[5] McNamara T F. Item response theory and the validation of an ESP test for health professionals[J]. Language Testing, 1990, 7(1): 52-76.
[6] Ajideh P. Schema-theory based considerations on pre-reading activities in ESP textbooks[J]. Asian EFL Journal, 2006, 16(2): 1-19.
[7] Marshall N. ESP and memory: A physical theory[J]. The British Journal for the Philosophy of Science, 1960, 10(40): 265-286.
[8] Haixiao W. Reform in the teaching of college English writing in the big data era[J]. Modern Distance Education Research, 2014, 3: 66-68.
[9] Huang Y, Jin X. Innovative college English teaching modes based on Big Data[J]. Educational Sciences: Theory & Practice, 2018, 18(6).
[10] Bailón M, Carballo M, Cobo C, et al. How can Plan Ceibal land into the age of big data?[C]//Data Analytics 2015: The Fourth International Conference on Data Analytics. IARIA, 2015.
[11] Qingbin C. Reconstruction of the teaching model of college English writing in the Big Data era[J]. Foreign Language Research, 2016, 3: 129-132.
[12] Shen G R. Chinese college English teachers' ability to develop students' informationized learning in the era of big data: Status and suggestions[J]. EURASIA Journal of Mathematics, Science and Technology Education, 2018, 14(6): 2719-2728.
[13] Peng B. Construction and application of the best teaching mode of college English in big data[J]. International Journal of Emerging Technologies in Learning (iJET), 2017, 12(09): 41-50.
[14] Liu J H, Liang W X, Li X D. Formative assessment system of college English based on the big data[C]//International Symposium on Computational Science and Computing. Springer, Cham, 2018: 472-480.