Strategies for Improving the Effectiveness of English Translation Teaching in Higher Vocational Colleges Based on Data Mining

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Abstract: At present, most vocational colleges have set up English majors accordingly, and translation is a compulsory course for English majors. Although some concrete measures have been taken to implement the teaching mode and method of translation teaching, there are still some problems in the practice of translation teaching. Higher vocational students have some misunderstandings in English translation, which requires teachers to improve teaching methods and promote students’ initiative to participate in teaching. How to change the position of translation teaching in higher vocational English teaching and improve the level of English translation teaching is a hot issue for all English teachers. Based on an in-depth analysis of the characteristics of English translation teaching in higher vocational colleges, this paper expounds in detail the strategies for improving the effectiveness of English translation teaching in higher vocational colleges based on data mining.

1. Introduction
Under the current educational development situation, university education undertakes the main task of personnel training. For non-English majors, good English proficiency plays a very important role in future employment and development. The purpose of English teaching in higher vocational colleges lies in application, and employers pay more attention to graduates' English application ability, among which English translation is a problem that graduates need to face frequently in their future work, and relevant English technical materials need to be translated [1]. Therefore, it is necessary to improve students' enthusiasm for English translation learning and the effectiveness of teachers' English translation teaching, which is the need of the development of the times, and also a problem that domestic universities need to consider carefully.

At present, many colleges and universities have begun to apply data mining technology in English teaching evaluation, taking students' achievements as the basis of database construction. Therefore, we can use data mining technology to mine the valuable knowledge in these data to guide our teaching [2]. The strategy of improving the effectiveness of English translation teaching in higher vocational colleges based on data mining is a relatively new teaching form. If it can be applied to English teaching practice in higher vocational colleges, the overall quality of personnel training will be greatly improved.

2. Overview of Data Mining
Data mining is a process of extracting potentially useful information and knowledge hidden in a large number of incomplete, noisy, fuzzy and random data that people do not know in advance. Data mining
technology is generally realized through information retrieval, statistics, data analysis, machine learning, pattern recognition and expert system, which has a very important relationship with computer science [3].

Data mining is a multi-processing stage. The data mining process mainly consists of three processes: data preparation, data mining, and result evaluation. The whole process is a continuous cycle and repeated process (Figure 1).

![Data mining process](image)

Figure 1 Data mining process

According to the definition of data mining, the premise of data mining is big data, which has three important characteristics: large amount of data, complex structure and fast data update. Data preprocessing generally include eliminating noise, deducing and calculating default data, eliminating duplicate records, and completing type conversion. For example, in the basic information table of students, some values of the attribute of students' origin are vacant, and such records should be cleaned. Data mining technology is a relatively complex process, a process of repeated circulation, in which every step must achieve the goal of early design, if it is not realized, it will return to the previous steps to continue to adjust and then execute [4].

### 3. Problems in English Translation Teaching in Higher Vocational Colleges

**Teaching methods and teaching concepts are relatively backward.** At present, in the process of English translation teaching in many higher vocational schools in China, the traditional "indoctrination" teaching method is still adopted. The boring classroom teaching atmosphere can not stimulate students' enthusiasm for English learning, and students' interest in English learning is low, resulting in poor teaching quality. At the same time, the confusion about translation teaching methods also puzzles teachers. How to organize translation classes efficiently is also a problem that teachers have been discussing. The practical application of translation is relatively rare, and teachers tend to carry out teaching activities in a systematic way according to teaching requirements. However, translation teaching is a kind of cross-cultural communication activity, which refers to all the language activities that take place when exchanging ideas, feelings and information with non-native people. The important position and function of English translation teaching are not highlighted in the curriculum, especially the lack of translation textbooks for the translation between English and Chinese, which greatly hinders the smooth development of English translation education. Students can't see the short-term learning effect, so it is easy for them to learn English translation in higher vocational colleges, which leads to perfunctory response to English translation in higher vocational colleges.

**Lack of professional English translation teachers in higher vocational colleges.** At present, the teaching quality evaluation system used in English translation teaching in higher vocational colleges in China mainly relies on the national English CET-4 and CET-6 test system, and judges the English learning level of higher vocational students according to their passing rates of CET-4 and CET-6, including translation exercises. When learners have difficulties in expressing a foreign language due to lack of enough knowledge of the target language, they will naturally rely on their native language
knowledge to make up for the lack of foreign language knowledge [5]. Although many teachers are highly specialized in written translation, their oral translation ability is poor due to their lack of oral expression ability. In text reading, if students' understanding of the meaning of words is not in place, there will be some deviation in the understanding of the whole text. Give a reference translation in class, and then explain it according to the translation difficulties. Students are busy copying the reference translation. The test of translation course is also a big problem, and this series of problems in English translation teaching is in front of teachers, which makes them very worried.

**Students' learning efficiency is low.** In the teaching of English translation in higher vocational colleges, the author finds that with the increase of students' vocabulary requirements and sentence grammar requirements, the students' learning area increases sharply, and students will feel blind and fearful. There is no necessary connection between learning English and learning professional knowledge, which is of little significance. Not much use after graduation. Especially, the teaching steps are too fixed. Usually, the teacher arranges the translation materials and explains the matters needing attention in the translation process to the students. After the students translate, the teacher explains and corrects them uniformly. The fixed mode not only makes the communication between teachers and students less. Although the teaching level of many English translation teachers in higher vocational colleges is very good, the English translation classes created by them are boring and unattractive due to some factors. English translation in some higher vocational colleges is only an elective course, which has not been carried out on a large scale in the whole school, so that English translation teaching in higher vocational colleges is bound to become a weak link in the whole higher vocational English teaching.

**The translation teaching system is not perfect.** At present, the setting of English translation teaching system in higher vocational colleges in China is not perfect and scientific, especially it does not really reflect the requirements of talent training plan and English syllabus in higher vocational colleges. The original English level of vocational college students is poor. Moreover, these students have weak motivation to learn English. Once students are required to recite 200 words, most of their time is spent on reciting them in time, and the consolidation of knowledge points is not very firm, which leads to that only 40 words can be remembered in the end [6]. This is the so-called forgetting rate. This is mainly due to the multidisciplinary nature of translation. First of all, it is difficult to choose translation textbooks. All the teachers in translation classes have common experiences, and they can't always choose suitable translation textbooks for higher vocational students. Therefore, during the study in higher vocational colleges, teachers can highlight the practical teaching of English translation, which can enhance students' interest in learning and realize the effectiveness of translation teaching.

### 4. Countermeasures for Improving the Effectiveness of English Translation Teaching in Higher Vocational Colleges Based on Data Mining

**Make a scientific and reasonable teaching plan.** Scientific and reasonable teaching plan is the key factor to ensure teaching quality. Therefore, in order to promote the better application of data mining-based English compound talents training mode in higher vocational English teaching practice, scientific and reasonable teaching plan should be formulated first. Therefore, we can discover the group effect brought by multimedia teaching through clustering. Listening is a major aspect of learning English, and listening test data is the easiest to obtain. Through clustering, we can find out which problems have an impact on students.

Logistic regression is evolved from linear regression, which uses a straight line to fit a given data point. This fitting process is called linear regression, while logistic regression is normalized on the basis of linear regression.

Linear regression is to multiply each feature or attribute in the training sample set by parameters, and add the results as the output result. The general form of the model is [7]:

$$h(x) = w_0 + w_1x_1 + w_2x_2 + \cdots + w_mx_m$$  \hspace{1cm} (1)

Expressed as a vector:
Logistic regression is to put the sum obtained by linear regression into Sigmoid function, and get the decimal number between (0,1). When the value is greater than the set threshold, it is considered as positive class, and when it is less than the threshold, it is negative class, that is:

$$h(x) = w^T x$$

(2)

$$g(z) = \frac{1}{1 + e^{-ws}}$$

(3)

$w$ is the parameter or regression coefficient of the model, $x$ is the output result after the training of the model, and it is the input sample point, where the Sigmoid function image is as shown in Figure 2 below:

![Sigmoid function image](image)

Figure 2 Sigmoid function image

In practice, it can effectively improve teachers' mastery of students' learning ability and enrich students' English translation ability and English knowledge system. This requires teachers to comprehensively consider the teaching objectives and students' English foundation when teaching English, and choose appropriate teaching materials, classroom exercises and test papers. English translation, as an ability that students must master, must be effectively studied in higher vocational education. Through the practice of translation ability, students can improve the application ability of English grammar and vocabulary. Let students deepen their impression. Then, some related examples are listed to help students master the essentials of multiple translation. Finally, some difficult examples are given for students to discuss, and teachers can analyze and guide them according to their discussions, so as to gradually improve the translation level.

**Reasonable setting of English translation teaching course.** There are some big problems in the curriculum of English translation teaching in higher vocational colleges, mainly because the curriculum has not been set up for a long time, and the English translation textbooks used in the curriculum also lack certain rationality and scienticalness. From the perspective of learning and teachers, school leaders should strengthen their understanding of English translation teaching in higher vocational colleges and increase the proportion of English translation teaching in higher vocational colleges. Although the students in higher vocational education have a certain English foundation, they are uneven, and some students have errors in the translation of some basic contents in English translation. Therefore, teachers should appropriately increase the basic contents when teaching English translation, so that students can consolidate their previous basic knowledge when learning in class. Therefore, higher vocational colleges must consciously cultivate students' listening, speaking, reading and writing skills, so that students can apply what they have learned. Translation can be regarded as a language framework for learning foreign languages. On the basis of cooperation with others, we can build foreign language ability together, while those who are backward in learning get guidance and support from those who are better at learning [8].
**Improve the overall quality of English translation teachers.** We must improve the professional quality of English translation teachers as soon as possible, because as direct implementers, organizers and guides of English translation teaching, their professional quality plays a key role. In this case, the teacher may wish to tell the students what to say in Chinese directly, for example, let the students find out the specific long and difficult sentences to explain, and after analyzing the structure, let the students try to translate the sentences into Chinese, and the teacher can sort out and summarize them on this basis. Teachers can also formulate an evaluation standard for students' ranking, pay more attention to the English progress of higher vocational students, and encourage students to study, speak and write bravely.

Decision tree is a tree structure that can automatically classify data. It is the knowledge representation of tree structure and can be directly converted into decision rules. It can be regarded as a tree prediction model. The root node of the tree is the whole data collection space, and each node is a splitting problem. It is a test of a single variable, which divides the data collection space into two or more blocks, and each leaf node is a data partition with classification [9]. Table 1 shows the correspondence between decision tree and natural tree and their representative meanings in classification problems.

| Natural tree | Corresponding meaning in decision tree | Meaning of Representation in Classification Problems |
|--------------|----------------------------------------|---------------------------------------------------|
| Root         | Root node                              | Whole data set space of training instance          |
| Branch       | Internal node, decision node           | Attributes of objects to be classified             |
| Branches     | Branch                                 | A possible value of the property                   |
| Leaves       | Leaf node, status node                 | Data partition                                     |

Decision tree generation algorithm is divided into two steps: first, tree generation, in which all data are at the root node at the beginning, and then recursively divide the data; Second, pruning the tree, that is, removing some data that may be noisy or abnormal. The conditions for decision tree to stop segmentation are as follows: (1) the data on a node belong to the same category; There are no attributes that can be used to partition data. Figure 3 briefly describes the decision tree generation process.

![Decision tree generation process](image)

Only when the translation teachers systematically master the translation theories and methods, can they really help students improve their translation ability in practical translation teaching, and at the same time, they can make the translation well-informed and well-documented, instead of translating by feeling. Schools with conditions can directly recruit professional English translation teachers to improve English translation teaching level in higher vocational colleges. Schools can train English teachers in higher vocational English translation, and constantly improve their professional quality and English translation level in higher vocational colleges. They should also participate in various English translation competitions, constantly provide a source for updating their translation teaching methods, and reflect on teaching in time, so as to effectively improve the quality of English translation teaching.

**Pay attention to guiding students to practice.** Improve students' translation level. In the process of English teaching in higher vocational colleges, teachers should pay attention to guiding students to practice, and increase students' interest in practice participation and improve students' English
translation level by using various teaching practice methods flexibly. Specifically, after learning a new knowledge point, the traditional teaching method is to continue to learn the next new knowledge in pursuit of teaching progress, which is unfavorable to students. Teachers should give full play to the practical role of English compound talents training mode based on data mining after students have learned the new knowledge point. Therefore, when teaching English translation, teachers should pay attention to students' understanding of the difference between the two, and correctly guide students to understand English cultural knowledge and English theoretical knowledge. Teachers can assign students to multiple English study groups, so that students with strong learning ability can help students with English learning difficulties and find out their own problems in the translation process. Create some simulated scenes of learning and communicating English, create more practical opportunities for students, and fully exercise students' practical ability. Teachers must pay attention to the vocabulary accumulation of vocational college students, consolidate their English foundation, and reflect the specific meaning of each word from the small to the big.

5. Summary
Translation is the actual embodiment of English comprehensive ability, which can bring challenge and interest to students, but it will also bring confusion to students and make them feel the difficulty of translation. Through the analysis of the article, we can easily see the importance of improving English application ability by attaching importance to translation class. The improvement of students' translation ability is closely related to their listening, speaking, reading and writing abilities. In this paper, an idea of using data mining technology to optimize English translation teaching strategies in higher vocational colleges is given theoretically, which is of certain significance for improving English multimedia teaching in higher vocational colleges. In the teaching process, teachers need to improve their translation ability and apply diversified teaching methods and means to improve the effectiveness of English translation teaching.

References
[1] Shao Jian. Research on the categories and characteristics of higher vocational English learning needs based on data mining technology [J]. Mechanical Vocational Education, 2019, 000(008): 52-58.
[2] Liu Yanqiu. Strategies to Improve the Effectiveness of Higher Vocational English Translation Teaching[J]. Information Weekly, 2019, 000(037): P.1-1.
[3] Zhao Lirong. Research on Strategies to Improve the Effectiveness of Higher Vocational English Translation Teaching[J]. New Education Era Electronic Journal (Teacher Edition), 2019, 000(037):255.
[4] Ma Chunju. Research on the Effectiveness of English Translation Teaching in Higher Vocational Colleges [J]. Liaoning Higher Vocational Journal, 2020, 022(005):41-43.
[5] Jiang Xiaohong. Research on Strategies to Improve the Effectiveness of Higher Vocational English Translation Teaching [J]. Journal of Suzhou Education Institute, 2017(06):131-132.
[6] Zhang Lu. On the Strategies to Improve the Effectiveness of Higher Vocational English Translation Teaching [J]. Modern Vocational Education, 2017, 000(001):144.
[7] Gao Hua, Liu Meili. Research on Higher Vocational E-commerce English Teaching Strategies in the Context of Big Data[J]. Friends of Humanities, 2019, 000(017): P.110-110.
[8] Bu Yang. Application of Data Mining Decision Tree Technology in Higher Vocational Teaching Quality Evaluation[J]. Journal of Hubei Open Vocational College, 2018, 031(021): P.32-34.
[9] Liang Linqing, Chen Shenghui. On how to improve the effectiveness of higher vocational English translation teaching [J]. Modern Communication, 2018, 000(013):205,204.