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Promotion analysis of data-driven learning method in english vocabulary teaching

Yuan Hu
Jinhua Polytechnic, Jinhua 321007,(CHINA)

ABSTRACT

Implementation key of data-driven learning method is positive transformation of teaching mode so as to enlarge students' vocabulary and improve their mastery of learned vocabulary for realizing the final goal of English vocabulary teaching through teaching mode transformation. Nevertheless, the classroom teaching cannot demonstrate advantages of data-driven learning method. This article analyzes the impetus function of data-driven learning method in vocabulary teaching by 3 teaching experiments, making research and discourse process more persuasive and promoting the "availability" of data-driven learning mode in English vocabulary teaching.

KEYWORDS

Data-driven learning method; English vocabulary teaching; Learning mode; Function analysis.

INTRODUCTION

"Data-driven" learning method has high research value in English vocabulary teaching, its connotation shows positive effect on classroom teaching mode transformation and demonstrable positive impact on students' academic performance. This article collates and analyzes corresponding teaching experiments data, epitomizing the advantages of "data-driven" learning method in English vocabulary teaching.

First, research in this paper is divided into two aspects --periodical vocabulary quiz before class and periodical performance test. Compare the vocabulary quiz results of the experimental class and contrast class selected on principle of "equality" and "confidentiality" and analyze the data acquired. Second, compare the periodical performance test results of the two classes with the same mentality to highlight the effect of "data-driven" learning method on periodical learning. And conduct effective experiment on English vocabulary teaching integrating with data-driven learning mode to reach a conclusion of higher scientificalness and broadly share teaching examples. Finally, deeply analyze the students' feedback of data-driven learning mode to make research process more persuasive. And provide a sound theoretical basis for the foundation of scientific development mentality of English vocabulary teaching and highlight the impetus of data-driven learning method on English vocabulary teaching.

INTERNAL MEANING OF "DATA-DRIVEN" LEARNING METHOD

Every expert or scholar has his own definition of data-driven learning method. Willis takes the class communication teaching as penetration point and regards data-driven method as a kind of communication act to revert the real language context in order to establish a better class teaching language situation. However, the key of his opinion is regarding the communication process as practice process of the unknown. In class teaching, that is the students can undertake full exploration and effective collection, collation and analysis of the data explored. For the difference between "lively" and "alive", students can firstly establish group learning mode and efficiently retrieve large corpora such as British National Corpus (BNC) and Corpus Of Current America (COCA) to obtain specific "difference" between these two words. This method has an active effect on students' vocabulary learning.

Tim Johns thought essence of the so-called data-driven learning method is realizing goal-directed language situation co-occurrence of class teaching to finally get the vocabulary taught used correctly and expertly[1]. And during this, language co-occurrence requires more extensive use of corpora to improve the ability to use learned vocabulary by effective retrieval and achieve the ultimate goal of "data-driven" learning method teaching.

PERIODICAL WORD DICTATION AND PERIODICAL TEST ANALYSIS

Periodical vocabulary quiz before class

In the summary and analysis of the results of English word dictation before class, teacher perform a word dictation at regular intervals before and after experiment, with the dictation word limited in the learned basic vocabulary and difficulty coefficient increasing by the advancement of periodical test. Basic content of the periodical test before class generally includes 20 words and 4 fixed phrases, 4 points for a word, 5 points for a phrase, 0 point for absence and the total score is 100. Collection and collation of every test result fully guarantee the "availability" of the data of experiment class and give scientific analysis and research of the data. While our experiment purely focuses on English vocabulary teaching, the experiment data offers absolute "availability" to the "scientificalness" verification in teaching process. The expected result is that the data of experimental class is far higher than that of the contrast class. This process is operated with excellent security measures to guarantee reliability of the data. SPSS 13.0 software is used for data collation and analysis, specific experimental results are as shown in table

For the total score of the two classes in word dictation, the *t* value of the two classes before class shows the scores of the two classes are nearly the same ($\rho > 0.05$). While the dictation scores of the two classes are improved in different extents, with the increase of the contrast class much lower than that of the experimental class. So in terms of the increase of the score, experimental class is much better than the contrast class ($\rho > 0.05$).

For the word dictation of the experimental class after experiment, the scores of 3 dictations are much higher than that before experiment, with huge increase between 1.50 to 10.10 points. The *t* value of the two classes before experiment shows faint difference between these two classes, demonstrating little "difference" ($\rho > 0.05$). While after experiment, despite the score increase of both classes, the difference between the two classes is big ($\rho > 0.05$), showing the new teaching mode have a positive effect on students' learning and help students to accumulate and master vocabulary with the increasingly deepening experiment.

In terms of the experiment results of the contrast class, students' vocabulary situation has improved after a period of teaching with nearly the same teaching mode. But the improvement is faint ($\rho > 0.05$). While as far as the total scores are concerned, the increases of the 3 dictations are 0.40 points, 3.30 points and 1.60 points. As for the entire experiment, the increases are small [2].

TABLE 1: Comparison of 4 dictations scores of two classes before and after experiment

-----	Experimental class		Contrast class		Value t	Value p
	average score	standard deviation	average score	standard deviation		
dictation score before experiment	65.80	22.10	66.60	18.80	-1.45	0.07
dictation score 1 month after experiment	67.30	20.80	67.00	21.10	2.76	0.03
dictation score 2 months after experiment	71.10	22.10	69.90	19.10	4.55	0.01
dictation score 3 months after experiment	75.90	14.70	68.20	16.80	4.78	0.01

TABLE 2: Comparison of effect on dictation scores of two classes before class after teaching experiment

	experimental class			contrast class		
dictation score 1 month after experiment minus that before experiment	difference of average score	Value t	Value p	difference of average score	Value t	Value p
dictation score 2 months after experiment minus that before experiment	1.50	2.76	0.03	0.40	1.26	0.11
dictation score 3 months after experiment minus that before experiment	5.30	4.55	0.01	3.30	1.55	0.04
	10.10	4.78	0.01	1.20	1.78	0.08

As is shown in the analysis of difference in 4 dictation scores of experimental class and contrast class before and after experiment, the score increase and sequence keeping ability of experimental class is much bigger than that of the contrast class. And with the experiment proceeding, the experiment situation can be kept, the difference between the experiment class and contrast class is increasingly widening and the "sustainability" is strengthening[3]. However, it shows downtrend at some extent in the last dictation, namely marginal diminishing effect. In order to sufficiently attest the "availability" of this experimental effect, this paper collect and collate corresponding analysis process, finding that the repeating error rate of students in the experiment class is much lower than that of the students in the contrast class. Also semantic error rate of the students in the experiment class in dictation is reducing, while that of the students in the contrast class goes up and down with the constantly increasing repeating error rate. This phenomenon validate that the experimental teaching mode has positive effect on students' vocabulary learning and can guarantee the "scientificalness".

Periodical performance test

In the collation and statistics of periodical performance test data, collect and collate the unified examination data before class of the two experimental classes first and then collect the midterm exam data and the final exam data. English scores of the two classes before experiment are at the same level, with 57 students in either class, a full mark of 100 points and the same experiment process as periodical vocabulary quiz before class. For the mastery and accumulation of English vocabulary take a long time, only strengthening vocabulary learning cannot promise progress in total score. So the test scores collected in this paper just serve as evidence. And the expected result is that, with the score of contrast class also improved, the English score after experiment of experimental class will not be lower than that of the contrast class[4], if teaching experiment works.

As for the "importance" of the 3 exams, students have paid more attention on the exams. The experiment is conducted in complete secrecy in order to acquire highly reliable data and spss13.0 software is used in corresponding data analysis for data collection and collation. Specific data is as shown in TABLE 3 and TABLE 4, data analysis process is as follows:

Comparing the average score of the two classes, we can see the "difference" in average scores of the two classes is not big ($\rho > 0.05$). While since the experiment began, the difference of average scores between midterm exam and final exam shows obvious "difference" between scores of the two classes, with the average score of the experimental class much higher than that of the contrast class.

The data statistics of experimental class shows, average score of experimental class is much higher than that of contrast class in midterm exam and final exam, and average scores of midterm exam have increased by 3.3 points 14 points and average score of final exam has increased by 10.7 points. The performance has been greatly improved after experiment, with the total increase of average score reaching 24.7 points. This proves that the new teaching mode has positive influence

on students' mastery and accumulation of vocabulary, and students benefit a lot from this mode which can meet students' requirements.

TABLE 3: Comparison of 3 tests situation of the two classes before and after experiment

	experimental class		contrast class		Value t	Value p
	average score	standard deviation	average score	standard deviation		
Unified exam before experiment	51.60	22.70	52.00	18.10	-1.25	0.08
midterm unified exam after experiment	54.90	20.40	49.80	25.60	3.95	0.02
final unified exam after experiment	65.60	18.40	57.10	17.70	5.78	0.001

TABLE : 4 Comparison of effect on the two classes before and after experiment

	experimental class			contrast class		
	difference of average score	Value t	Value p	difference of average score	Value t	Value p
midterm exam minus unified exam before experiment	3.30	2.50	0.05	-2.20	-1.10	0.11
final exam minus midterm exam	10.70	5.44	0.01	7.30	2.50	0.05
final exam minus unified exam before experiment	14.00	7.54	0.001	3.40	2.80	0.05

For the periodical test performance, it appeared a slight rise in students' average score after a term in spite of little adjustment on teaching mode essence. Although the average score of midterm exam is 2.2 points lower than that of the exam before experiment, the average score of final exam is 5.1 points higher than that of the last final exam. The *t* value also shows a small rise in score, meaning a certain progress in students' vocabulary accumulation. The rise in final exam average score of contrast class is inappreciable compared with experiment class, and its "stability" cannot be guaranteed.

Although the statistics of mean difference in 3 periodical tests shows that scores of the both classes have been improved at some extent, the difference between the two is huge. With the experiment speeding up, the advantage on average score of the experimental class is getting more and more obvious, while the score rise of the contrast class is getting smaller and smaller, which also corroborates marginal diminishing effect[5]. The standard deviation shows the average score of contrast class increases first and then decreases, with decentral midterm exam scores and the same concentrative final exam scores. On the contrary, the standard deviation of experimental class drops constantly before and after experiment, with increasingly concentrative test score. This also fully vindicates the new teaching mode's positive impact on students' vocabulary accumulation and mastery.

VOCABULARY TEACHING EXPERIMENT IN DATA-DRIVEN LEARNING MODE

Vocabulary teaching cases in data-driven learning mode

Take a student's composition titled "Knowledge" for example. There are some problems in this composition like verb collocation about *knowledge* caused by negative transfer of Chinese. We have performed an experiment about this in order to help students to get better understanding of how the native speaker use the verb collocation about the word *knowledge*.

TABLE 5: Comparison of using frequency about verb collocated with *knowledge* in two corpora

	Leam	Have	Get	Use	Study	Master	Improve	Enrich	Gain	Grasp
CLEC	141	41	34	25	22	21	18	14	12	8
BNC	0	53	1	4	0	0	1	0	11	0

From TABLE 5, we can see that the most frequently used verb collocation by our students is *learn knowledge* which never appears in BNC. That is to say, the phase *learn knowledge* is not used by native speaker[6]. Meanwhile, other frequently used verbs collocated with *knowledge*, expect *have* and *gain*, barely appear or never appear in BNC. By comparing these two corpora, students can find their problems in word application and correct use of words from native speaker so as to improve

their English and promote self-study ability. For example, when answering the 5th question above, learner can type in the retrieval item *[v*] knowledge* to get the frequent verbs collocated with *knowledge*, such as *have, acquire, required, gain, need, share, increase, provide*. In addition to searching using frequency in target language corpora, learner can also guess word meaning through context, discriminate synonyms, distinguish word semanteme and so on.

Comparison of test results in two classes before and after experiment

The writer conducted vocabulary tests on the regular class and experimental class with Nation (1990) vocabulary quantity test paper before and after experiment, the result is as follows:

TABLE 6: Vocabulary test result of both classes before experiment

	N	average score	standard deviation
regular class	30	72.8667	7.86846
experimental class	30	73.6333	7.37883

TABLE 7: Vocabulary test result of both classes before experiment

	N	average score	standard deviation
regular class	30	74.3667	7.74367
experimental class	30	80.6000	6.40366

Tabulate the results through SPSS1710 statistics and analysis to discuss. Before experiment, writer performed test on both classes with Nation vocabulary quantity test paper, the result is as shown in TABLE 6, with the average score is 72.8667 for regular class and 73.6333 for experimental class.

FEEDBACK ANALYSIS FROM STUDENTS ON DATA-DRIVEN LEARNING MODE

In order to reflect the influence of data-driven teaching mode on students' learning initiative and make this learning method widely used in English vocabulary learning, the writer has conducted corresponding questionnaire survey, with the purpose of further research on advantages of this teaching mode and better avoidance of disadvantages in data-driven learning method. In the collation and data statistics of questionnaire survey, we found many students can only make single selection in the first and second question, and can make multi-selection in the third and forth question. Details of the collation and analysis are as follows:

TABLE 8: Questionnaire survey about vocabulary teaching in data-driven learning mode

Data-driven learning mode is a great help to my vocabulary learning			Data-driven learning mode is very interesting to me		
Option	**Frequency**	**percentage**	**Option**	**Frequency**	**percentage**
Very pleased	5	17	Very pleased	12	40
Agree	20	67	Agree	14	47
No idea	2	6	No idea	0	0
Disagree	1	3	Disagree	3	10
Strongly disagree	2	6	Strongly disagree	1	3

TABLE 9: Questionnaire survey about vocabulary teaching in data-driven learning mode

What benefits data-driven learning mode brought to me?			Disadvantages of data-driven learning mode		
Option	**Frequency**	**percentage**	**Option**	**Frequency**	**percentage**
Very pleased	20	29	Very pleased	7	13
Agree	21	70	Agree	21	40
No idea	18	26	No idea	18	34
Disagree	20	29	Disagree	5	9
Strongly disagree	3	4	Strongly disagree	2	4

From the data in the above tables (TABLE 8 and TABLE 9), we can see that 84% of the students think the data-driven teaching mode brought great positive effect to their English vocabulary learning and mastery, and 87% of the students think it has made the class more interesting and made them more willing to participate in the mode. At same time, as for the third and forth question, many students said this mode provides great positive effect to themselves in English vocabulary teaching, such as more and more corpora to select making students more initiative in vocabulary learning and make boring vocabulary teaching more lively and vivid. Attention must be paid on another 21 students' opinion about data-driven teaching mode, this 80% of students think the mode only saves energy in their English vocabulary learning. This phenomenon is generated by many factors, such as external factors of complicated retrieval tool and students' unskilled use of retrieval tool which can be settled easily. But there are also another 21 students said they always encountered difficulties in summarizing their learning method and learning pattern. This phenomenon is generally the result of traditional learning thought, that is to say, students always rely on textbook and dictionary to find answers and lack confidence in summarizing learning pattern, which also reflect passive learning[7].

CONCLUSION

This paper deeply researched the "advantages" of data-driven learning method on students' vocabulary learning. Explore the application value and "scientificalness" of data-driven teaching mode on the basis of its internal meaning and English vocabulary teaching experiment. Combining with teaching cases in data-driven learning mode, this paper deeply analyzed the teaching process, demonstrating its promotion to students' vocabulary learning. This paper focuses on application of data-driven learning mode and conducts questionnaire survey on learning results in order to timely avoid disadvantages of data-driven teaching method in English vocabulary teaching and "maximize" the method's promotion to students' mastery of vocabulary.

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