

The Influence of Constructivist Learning Style on College Students' Learning of Basic Subjects

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Abstract: Today, constructivism has become an important research topic in university discipline studies. Multiple studies have shown that using a constructivist approach to learning may have a positive impact on the learning of college students. The researchers looked at the factors involved in using or not using this method. However, more detailed research on the impact of constructivism on learning is lacking. Therefore, this paper collects data through questionnaires, takes the university basic course "Advanced English" as an example, using variance analysis, correlation analysis and frequency analysis and other methods to explore the impact of constructivist learning methods on college students' English subject learning. The results show that: 1. Although nearly half of college students use constructivist learning methods in their daily English learning, only about 25% of students choose constructivist learning methods when preparing for CET-4 and CET-6, and most students prefer to prepare for the test by accumulating English knowledge in daily life. 2. The students who learn English with the constructivist learning method and the students who learn English with other learning methods are not much different in the final grades of Level 4. Different learning methods have a great influence on students' learning, and the high score ratio of students who use constructivism in CET-4 will be higher than those who use other learning methods. The impact of learning methods on students' performance is not as important as imagined. Students who use constructivist learning methods for English learning do not have better grades in the CET-4.

Keywords: constructivism, learning style, university basic course, advanced English

1. Introduction

The way knowledge is constructed affects learning in a given subject. As a method of learning, constructivism has a place in university scientific research. Researchers generally agree that constructivism has a strong influence on learning in subjects such as motivation. However, the effects associated with this, and their causes have not been fully studied. In recent years, with the appropriate deletion and addition of various subjects in the university, the constructivist learning method has become more and more important in the university education system of our country. This article aims

to investigate the influence and willingness of constructivism on college students' subject learning and draw some conclusions through data analysis for analysis.

To study the impact of constructivist learning methods on the cognitive understanding and learning motivation of college students in advanced English courses, the research will obtain data through a questionnaire survey, and select college students with similar ages, majors, and learning levels to fill out the questionnaire.

2. Constructivism

Constructivism can be defined as a style of teaching that prioritizes the student as an agent of knowledge acquisition and understanding [1]. Driscoll asserted that "knowledge is constructed by learners as they attempt to make sense of their own experiences" [2]. Constructivists highlight that learning takes place through direct experience in order to be effective [2]. They also stress the necessity of experience-based knowledge in order to comprehend any kind of information [3]. The "learning process" rather than the "learning product" is more significant in constructivist learning [4]. According to the constructivist theory, learners' access to information needs to be increased. Therefore, in order to acquire the desired training, it is crucial to be an active learner (lifelong learner). The decision of what to study and how to acquire new knowledge rests with the learner [5]. According to Driscoll, educators should give students "opportunities to explore and learn about things of personal interest" [2]. Each student should be able to participate fully in a constructivist classroom, and the setting where knowledge is created should be adaptable and student-centered [6].

The predominant educational philosophy of this century is without a doubt constructivism [7]. It appears to have had a significant impact on teaching in recent years. The use of constructivist learning theory in a multidisciplinary learning environment is also investigated in this study [8]. According to a related study, constructivism is now used more frequently in interdisciplinary and cross-disciplinary sectors [5]. For instance, educators started creating lesson plans that featured problem-solving, one of constructivism's key components [8]. Programs that are well-designed should provoke learners to consider how they may apply the knowledge they have more successfully in the actual world [9]. Additionally, STEM teachers are fostering cultures that are safe for students to ask questions and incorporate their answers into their learning [10].

Constructivism is a learning method that emphasizes the initiative of learners, guides students to start from their original experience, constantly adjusts and improves their knowledge, and finally constructs new knowledge. As an emerging theory, constructivism is different from other traditional teaching methods in learning and education. The subject starts with the influence of constructivist learning methods on college students' advanced English courses, mainly through questionnaires to explore what role constructivist learning methods can play in college students' basic course learning, and whether they can affect students' academic performance and learning enthusiasm.

3. Method

3.1. Participants

The subjects of this study are 207 college students and a few recent graduates from many universities in southeastern China. About 81% of the students think that it is very important for college students to pass CET-4 and CET-6, so the research set CET-4 as the criterion for judging the level of comprehension in this study. Considering that most students may not know much about constructivist learning methods, and may use constructivist learning methods without knowing it, research briefly listed several methods of constructivist learning (such as constructing learning frameworks, combining logic frames, specific individual training, etc.). The characteristics of the sample reflect to a certain

extent the understanding of college students in this region on constructivist learning theory and their views on applying the theory to practical learning.

3.2. Measures

This survey adopted the form of a questionnaire. The questions in the questionnaire were designed by our group. The questionnaire mainly adopted the combination of a selectively structured questionnaire and a Likert scale. There are 7 multiple-choice questions, 4 Likert scale questions, 11 questions in total (the 10th question is the same as the 11th question when filling out the questionnaire, it will jump to one of the two questions according to the previous options, and one of the questions will not be repeated).

3.3. Research Process

1. Adopt the form of an online questionnaire and ask students to fill it out on the questionnaire star.
2. After collecting the questionnaires, use the computer to screen the effective questionnaires, and then use Passau for data analysis.
3. Group discussion and analysis of the survey results.

3.4. Result

Content analysis is used to analyze the data in the articles [11]. Through variance analysis, correlation analysis and frequency analysis, the authors aim at whether the constructivist learning method has a positive impact on the enthusiasm of students in different teaching methods, and whether the constructivist learning method and the non-constructivist learning method in the students' minds are different in English learning. The comparison of the importance of medium and which learning method students are more inclined to use to learn, these three questions have been analyzed data.

3.5. Result Prediction

1. Most students choose the constructivism learning method in English learning.
2. Through the four-level scores, it is determined that the constructivist learning method can improve the enthusiasm of students in learning.
3. Students believe that in English knowledge, the construction of frame logic and mind map is more important than real practice and daily accumulation.
4. Most of the students are more inclined to use the constructivism learning method to learn, and the students who use the constructivism learning method to learn have higher scores in the CET-4 examination.

4. Research Detail

4.1.1. Students' Choice of Constructivist Learning Style

Through the statistics on the questionnaire data, it can be seen from Table 1 that about 45% of the students take the constructivist learning method as the main way of daily English learning. The data does not exceed 50%, so more students are still more inclined to choose other learning methods.

Table 1: The main ways of college students' English learning.

What are your main ways of learning English? [Multiple choice]		
choose	subtotal	proportion

Table 1: (continued).

Master the English learning framework for special training (such as individual training in listening, speaking, reading and writing)	94	45.41%
real practice	39	18.84%
Daily accumulation (find listening materials, listen to English songs, read English books, watch English videos, etc.)	73	35.27%
other	1	0.48%
The number of people who effectively filled out this question	207	

4.2. Ways to Improve Learning Enthusiasm

The authors will combine the questionnaire topic “What kind of learning methods do you think will improve your enthusiasm in the process of preparing for the exam?” with the students’ final CET-4 scores.

Table 2: Correlation analysis of the impact of different learning methods on English CET-4 scores.

		build framework	real practice	daily accumulation	other
CET-4 (1)	correlation coefficient	-0.109	-0.051	-0.217*	0
	p-value	0.279	0.617	0.03	1
	sample size	100	100	100	100
CET-4 (2)	correlation coefficient	0.095	-0.009	0.069	0
	p-value	0.347	0.933	0.494	1
	sample size	100	100	100	100

* $p < 0.05$ ** $p < 0.01$

CET-4 results (1) represent students who use other methods of learning, and CET-4 results (2) represent students who use constructivist learning methods. From Table 2, research can conclude that correlation analysis is used to study the comparison between word formation logic and conceptual framework, real test practice, daily accumulation, etc., and CET-4 scores. strength of relationship. Specific analysis shows that: the smaller the p-value, the higher the degree of correlation. Research can see that the p-value of “build framework” in cet-4 (2) is the smallest and has the greatest correlation with the level of grade four, and in cet-4 (1) has moderate correlation (relatively speaking). Interestingly, research can find in the figure that whether “real practice” is in cet-4 (1) or cet-4 (2), the p-value is the largest, and its correlation with the fourth grade is the smallest. Therefore, for

students who study college English and aim at the CET-4 score, the choice of different learning methods has little effect on the correlation between the final CET-4 score. In the four groups' research set up (the learning approach group), there was no corresponding correlation in achieving higher scores (above 550) for students who chose constructivism and authentic test practice, but in the comprehensive analysis group, there was a negative correlation.

4.3. The Importance of Different Learning Styles in Students' Minds

Research has performed frequency analysis on the four scale questions in the title, and will choose the option of 5 points as the criterion for identifying this learning method as very important.

Table 3: Frequency analysis of mind map learning method.

Frequency Analysis Results				
Name	Options	Frequency	Percentage (%)	Cumulative percentage (%)
Mind Mapping	1	4	4	4
	2	10	10	14
	3	21	21	35
	4	45	45	80
	5	20	20	100
Total		100	100	100

Table 4: Frequency analysis of frame logic learning method.

Frequency Analysis Results				
Name	Options	Frequency	Percentage (%)	Cumulative percentage (%)
Frame logic	1	3	3	3
	2	8	8	11
	3	23	23	34
	4	40	40	74
	5	26	26	100
Total		100	100	100

Table 5: Frequency analysis of daily accumulation learning method.

Frequency Analysis Results				
Name	Options	Frequency	Percentage (%)	Cumulative percentage (%)

Table 5: (continued).

Daily accumulation	1	2	2	2
	2	10	10	12
	3	16	16	28
	4	47	47	75
	5	25	25	100
Total		100	100	100

Table 6: Frequency analysis of real practice learning method.

Frequency Analysis Results				
Name	Options	Frequency	Percentage (%)	Cumulative percentage (%)
Real practice	1	3	3	3
	2	12	12	15
	3	26	26	41
	4	40	40	81
	5	19	19	100
Total		100	100	100

From the frequency analysis results of Tables 3-6, it can be concluded that under the same sample size, the frequency of students who think that the mind map is very important is 20, and that the framework logic is very important. The frequency of students who think it is important is 26, the frequency of students who think that daily accumulation is very important is 25, and the frequency of students who think that real test practice is very important is 19. In general, after the exam, students think that frame logic and accumulation are the most important in English learning. In the comparison of the importance of constructivism learning style and non-constructivism learning style, constructivism learning style is slightly higher.

4.4. Figures

The authors have conducted an overall analysis of the grade 4 grades of students who use the constructivist learning method and students who use other learning methods, as shown in Figure 1 and Figure 2.

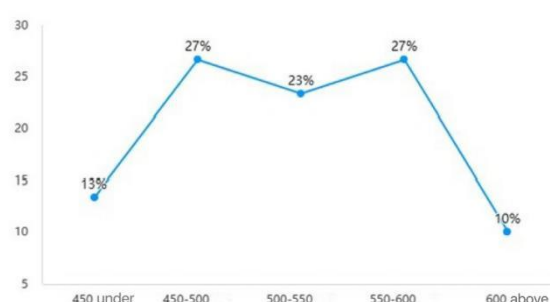


Figure 1: Score distribution of CET-4 using constructivist learning methods.

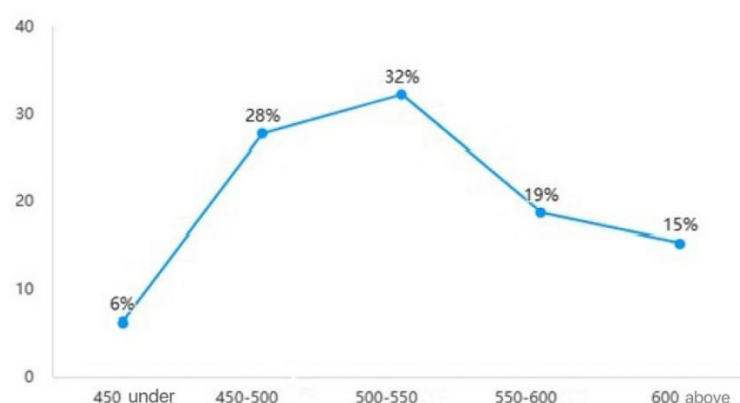


Figure 2: Score distribution of CET-4 using other learning methods.

5. Conclusions

In summary, the following conclusions are drawn.

1. Although 45% of students choose constructivism learning method to learn English, most students still prefer other learning methods to learn English.

2. The objective factors may have a greater impact on students passing CET-4 than subjective factors, so the constructivist learning method also plays a more important role. Due to limitations, further improvement is needed, and because the teaching results of constructivism cannot be determined solely by test scores, research only uses this result for reference and comparison.

3. Contemporary college students believe that the importance of using constructivist learning methods for English learning is slightly higher than daily accumulation and real test practice.

4. Compared with the construction of the knowledge framework, the use of real test exercises and daily accumulation is more important for CET-4 learning, because in comparison, the scores of CET-4 without using the constructivist framework are higher.

This study found that through the analysis and thinking of the data, even though the number of our samples reached 207, there were very few students who really applied constructivism to study specific subjects. In this sample analysis, only 30 people. Researchers are helpless to say that due to the limitation of the number of samples, researchers are unable to conduct further in-depth analysis of the specific impact of constructivism on the subject of English. Through the comparison of the obtained data, the English scores of students who use constructivism in learning are worse than those of students who do not use or even know constructivism, which is quite different from our expectations. Guess and explain based on the researcher's own learning process - it takes a lot of energy and time to learn the constructivist learning method and apply it to specific subjects in the early stage, which is exactly what students and teachers do not prefer in the modern education system. According to the analysis of the data in the previous tables, research can only conclude that constructivism has a certain influence on the learning of specific subjects, but this effect is not significant, and research cannot study it in depth in a short period of time. This reflects that the popularity of constructivism in student learning is not high enough, and students do not care much about not using constructivist learning methods. Even so, constructivist learning methods still play a big role in daily learning, and methods such as logical frameworks and mind maps are also widely used in students' daily learning process. This study is expected to fill in the gaps in the impact of learning constructivism on college students' advanced English learning in the Chinese educational background. However, the sample selection of this study is limited by its scale, and only the

questionnaire survey method of statistical survey research is used. It is hoped that future research can draw larger samples, adopt richer research methods, and conduct detailed research on existing literature to make the research results complete and more accurate.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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