

Exploration on the Cultivation of students' Innovative Thinking in College English Teaching Based on TRIZ Theory

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Keywords: TRIZ theory; College English teaching; Innovative thinking

Abstract: How to cultivate students' innovative thinking has been always an urgent problem in college English teaching. Traditional college English teaching focused more on students' acquiring of input knowledge from books while ignored the cultivation of students' output ability and good learning habits. Therefore, there needs great improvement in college English teaching. Innovative thinking refers to people's ability of using existing knowledge and experience to develop new fields, which can effectively improve students' English proficiency. To build a world-class university, many Chinese universities constantly improved English teaching methods to cultivate more English talents with innovative thinking to adapt to the rapidly developing social environment. One of the path is to offer TRIZ(Theory of the Solution of Inventive Problems) courses to improve the quality of college English teaching. However, TRIZ is still in the exploratory stage for its professionalism, so there are still great deficiencies in the implement process and practical solutions are needed to solve this problem. Based on TRIZ theory, this paper aims to explore effective ways to cultivate students' innovative thinking in College English teaching.

1. Introduction

With the development of education and the increase of international exchanges, China has begun to pay attention to the cultivation of innovative thinking in English teaching, but it is influenced by test-oriented education and traditional teaching concepts. There are still a series of problems to be solved urgently in the cultivation of students' innovative thinking in English teaching.^[1] To a certain extent, students have only mastered part of the book knowledge, and will not draw inferences from other facts and use them flexibly, which reflects that there is a lot of room for improvement in college English education. In universities, language majors have not been placed in the scope of the need to cultivate innovative thinking for a long time. Most teachers and teaching administrators believe that language majors only need to follow the script.^[2] The so-called innovative thinking refers to people's thinking ability of exploiting new fields by using existing knowledge and experience, that is, the thinking of pursuing the best and the latest knowledge in people's thinking field. With the continuous development of economic globalization, the cultural exchanges and trade cooperation between China and the western society have become closer.^[3] Therefore, there is a high demand for talents who can master English knowledge and cross-cultural communication skills. At present, some universities have begun to implement English education reform. Take building a world-class university as the development goal, improve English teaching methods, and train more English talents to adapt to the rapidly developing social environment.^[4]

English plays an important role in China's exam-oriented education, especially when college students enter the society and take part in work. The English level adds a lot to college students' personal ability. In recent years, some universities in China have offered TRIZ courses one after another. However, the knowledge of TRIZ is limited to some professionals, who apply TRIZ theory to classroom teaching.^[5] It provides a brand-new concept for classroom teaching, and it is still in the exploratory stage. In the stage of educational reform, university teachers often apply TRIZ theory and take advantage of its comprehensive analysis to improve the overall level of teaching optimization and improvement in terms of strategy quality.^[6] It is seen that there are still great deficiencies in college English education, and relevant educators need to implement practical solutions to solve this problem. In order to effectively improve students' comprehensive ability to

use English, it is particularly important to stimulate their innovative thinking. The traditional English teaching mode cannot meet the needs of students and social development for English ability.^[7] Under the social background of the new era, the improvement of college English teaching mode based on TRIZ theory can effectively improve the quality of English teaching, and has important teaching value and social significance.

2. Weaknesses in College English Teaching

2.1 Concept weakness

Teaching concepts can determine the actual quality of college English teaching services. When teachers have teaching concepts closely related to the times, that is, when they focus on cultivating students' comprehensive ability, long-term professional ability and innovation ability. The teaching ideas it provides to students will be relatively close to the modern form of talent training.^[8] In response to this problem, relevant experts have pointed out that the fundamental reason is that the content and goals of college English education are out of touch, especially the current social environment attaches great importance to English. As a result, college students are forced to study English, and the natural learning efficiency is not high. The learning of English knowledge is based on theoretical knowledge, while the practical application and communication skills are more important. At present, there is a certain lag in College English Teaching.^[9] TRIZ theory can be integrated with the theories of various industries and gradually form a comprehensive theoretical system.^[10] TRIZ theory has become the most powerful guiding method system to solve technical and non-technical problems. The source and main contents of TRIZ theory are shown in *Figure 1*.

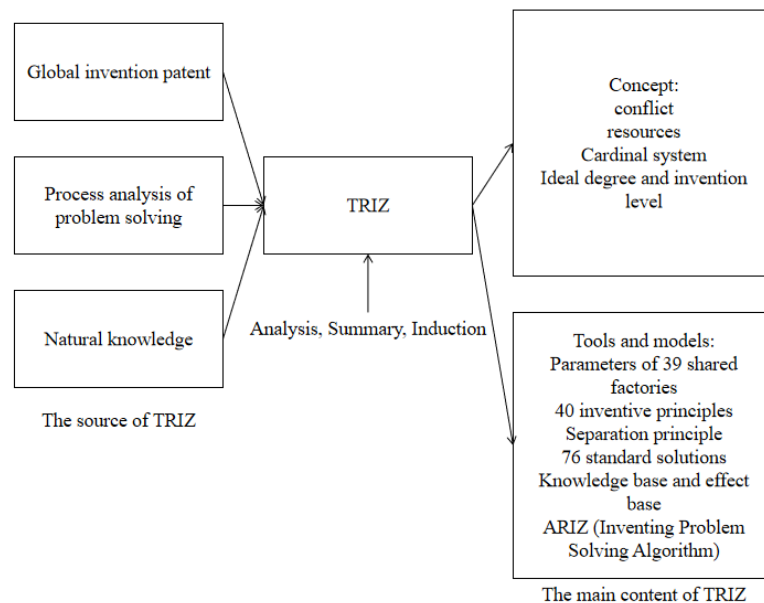


Figure 1 Source and main contents of TRIZ

Therefore, considering the effect that teachers' personal concepts may have on students, college English teachers should appropriately improve their own backwardness in concepts. To pass on some innovative knowledge to students, so as not to cause rigid thinking of students, it is difficult to meet the needs of the society for English professionals.

2.2 Student's Personal Vulnerability

In fact, some teachers will transfer some knowledge points with innovative thinking to students in class, but whether students can receive the knowledge perfectly does not entirely depend on teachers. TRIZ theory is the key to solving the problem of innovation, which is the patent theoretical knowledge obtained by the scientists of the former Soviet Union based on the accumulated data. The main purpose is to solve the problem of excessive discovery, as well as the obstacles and contradictions in the process of solving the problem. Therefore, such an innovative

theoretical method is also an important innovative preparation so far. Under the background of economic globalization, China's social and economic development has more strict requirements on talent ability and quality. The traditional teaching mode can not effectively meet the needs of students and social development. With the development of society, the demand for talents has gradually changed, and students' comprehensive ability has been paid attention to. Teachers must change the traditional teaching concept, improve students' English level and practical ability, create opportunities for students to explore, and improve students' awareness of autonomous learning. Generally speaking, there are some prominent problems in college English teaching in most universities in China, and the teaching reform strategies have not been effectively constructed, even lacking a unified definition. However, it is obviously unrealistic to rely on students' autonomy to change this situation. Teachers still need to play an educational role and adjust the weak factors existing at the individual level of students.

3. Path of cultivating innovative thinking in college English teaching based on TRIZ theory

3.1 Updating the teaching concept and upgrading the expected teaching quality

The teaching concept is based on Teachers' personal teaching inertial thinking. Therefore, when teachers think it is necessary to add innovative thinking to the teaching system to cultivate knowledge points, they will naturally have higher expectations for the classroom. Therefore, the methods and means for teachers to implement the teaching plan and optimize the teaching mode will also be improved. More entertainment items can actually solve the atmosphere in classroom teaching and create a more correct learning atmosphere and entertainment form. Moreover, in this process, we can effectively supervise its application, so that in the implementation of College English teaching, we can not only improve the comfort of the learning environment, but also enable students to obtain more professional knowledge. There are some differences between the improvement of college English teaching mode based on TRIZ theory and the traditional English teaching mode and teaching philosophy. Modern TRIZ theory summarizes various separation principles into four basic types, namely, spatial separation, temporal separation, conditional separation and separation of whole and part, as shown in *Figure 2*.

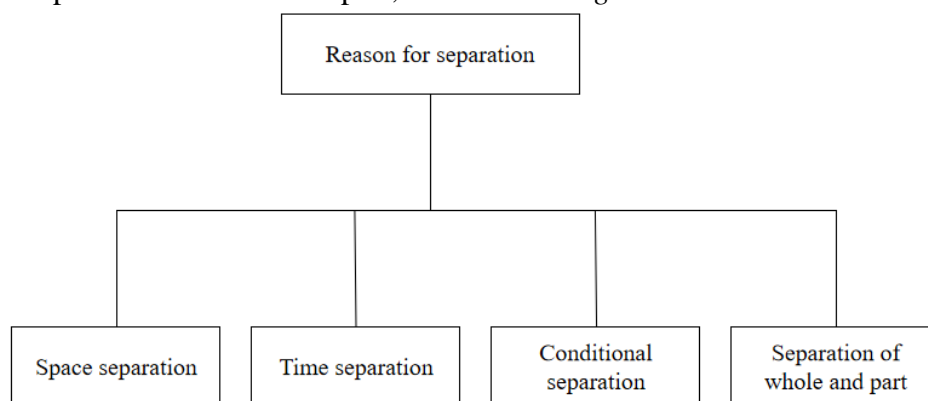


Figure 2 Four methods of separation principle

The innovative teaching mode not only requires students to master English grammar knowledge and teaching content in textbooks. In response to such a situation, teachers should try to give full respect to the dominant position of students, provide more guidance in the classroom, create opportunities for students to learn independently, train students' divergent thinking, and improve students' innovative ability. In this way, the English teaching team can make use of the analytical advantages of TRIZ theory to eliminate the adverse factors and interference factors in the existing teaching system.

3.2 Cultivating students' creative ability

Although college English courses are classified under the scope of professional courses,

entrepreneurship courses are currently regarded as the first choice for modern courses in various universities. Universities should start from their own educational level and qualifications to ensure the balance of reform. The principle of division and combination in TRIZ theory refers to product design. The product is regarded as a relatively independent individual, and each individual is merged according to the principle of division and combination, and then the innovative development of the product is realized. Teachers should always pay attention to students' learning emotions and flexibly adjust teaching methods. Teachers should carry out hierarchical teaching according to students' learning level. Effect is a description of the conversion process between system input and output. This process is jointly dominated by scientific principles and system attributes, accompanied by corresponding phenomena and corresponding functions, as shown in *Figure 3*.

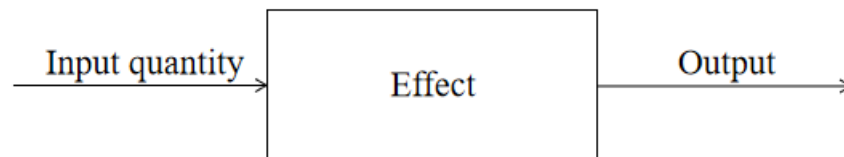


Figure 3 Schematic diagram of the effect

According to the students' different areas of expertise, we will set up different levels of teaching goals for students at different levels to reduce students' learning pressure. You can also set up a brainstorming teaching mode through the rich and colorful information on the Internet, and teachers can set related questions. Let students and teachers discuss on the network platform, so as to improve the interaction frequency between teachers and students. Teachers can set different innovative elements according to students' academic year and personal learning process. For example, in the freshman stage, students are required to exercise their corresponding spoken English by themselves after investigating social resources. However, in the junior year, it is necessary to use more difficult cross-cultural sentences to exercise one's ability of reaction and correspondence.

4. Conclusions

As TRIZ theory provides a brand-new concept for English classroom teaching and plays an important role in cultivating students' innovative thinking, it is necessary to apply TRIZ theory scientifically and rationally in college English teaching reform. We college English teachers also need to understand TRIZ theory and explore how to apply innovative theories and innovative methods of TRIZ theory to our English teaching to cultivate students' practical skills and improve their English proficiency, such as building a TRIZ theory teaching platform, reforming teaching materials, enriching teaching content, innovating teaching methods of English vocabulary, grammar, and practice teaching. In the research on the improvement of College English teaching model based on TRIZ theory, the dynamic principle, the pre-principle and the principle of segmentation and combination in TRIZ theory will be used. Through the application of TRIZ theory in college English teaching by updating teachers' teaching concepts and teaching methods, creating innovative atmosphere in classroom, improving students' awareness of subject participation, etc., we found that students' innovative thinking and innovative spirit got greatly improved, resulting in promoting the improvement of College English teaching quality. Though TRIZ has been widely used in English teaching and has received positive effects, it still needs further exploration on its path to construct the systematic platform to strengthen students' innovative ability in college English teaching.

Acknowledgements

Research on the Curriculum System Construction of “GEP+IVE” (Project No.: JG-2018034), supported by 2018 First-class Undergraduate Education Project in Tongren University, Guizhou Province.

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