

The Application of TRIZ Theory in English Major Writing Courses in Private Colleges and Universities

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Abstract: Against the backdrop of economic globalization, there is a growing demand for high-level written communication skills among English majors, yet students in private universities face specific challenges in writing acquisition. This study aims to explore the application of TRIZ theory, a systematic methodology for inventive problem-solving, to innovate writing instruction in this context. The research method involves a theoretical analysis of TRIZ's applicability to writing instruction, followed by the formulation of specific teaching strategies based on its core principles to address identified systemic contradictions. The significant findings demonstrate that applying TRIZ principles—such as Segmentation, Prior Action, Feedback, Local Quality, and Asymmetry—can effectively resolve key contradictions in teaching processes, student competence, and resource allocation. These applications yield practical strategies including modular teaching, a closed-loop feedback mechanism, and personalized task design, which collectively foster a more refined and student-centered writing pedagogy. In conclusion, the integration of TRIZ theory provides a systematic and effective framework for reforming English writing instruction in private universities, ultimately enhancing the cultivation of applied talents with strong written communication skills.

Keywords: TRIZ Theory; Writing Instruction; Teaching Reform; English Majors; Private Colleges

1. Introduction

With the in-depth development of economic globalization and increasingly frequent international exchanges, society has put forward higher and more practical requirements for the

written communication competence of English major students. However, English majors in private colleges and universities are faced with special challenges in cultivating writing competence. Students have relatively weak foreign language basics, the teaching resources are relatively limited, and teaching needs to highlight the orientation of application and employment [1]. At present, writing courses provided in private colleges and universities generally have several problems. For example, students may show strong fear of difficulty, and lack of concrete content in their writings. Single teaching mode lack of efficiency and feedbacks, which urgently needs to be improved. To solve these complexities, it is necessary to introduce interdisciplinary innovative theoretical methods. In this regard, TRIZ Theory, as a systematic theory for solving inventive problems, provides a new perspective for teaching innovation. This study aims to explore its application in writing instruction and provide a set of specific and operable application strategies for private colleges and universities, so as to reform the teaching practice.

2. TRIZ: Theoretical Introduction and Its Theoretical Applicability with Writing Instruction

2.1 A Brief Introduction to TRIZ Theory

TRIZ Theory (Theory of Inventive Problem Solving) is a systematic innovative methodology proposed by Soviet inventor Genrich S. Altshuller in 1946. Based on the analysis of millions of patents worldwide, this theory summarizes the evolution laws of technical systems and general solving principles for inventive problems. Its core ideas include: Technical System Evolution Laws (such as S-curve and dynamics law), Contradiction Matrix, Ideal Final Result (IFR) and substance-field analysis, and other tools.

The application and practice of TRIZ have experienced a process of expanding from the field of engineering and technology to multiple disciplines. It was initially applied in fields such as machinery and manufacturing, and then gradually extended to management, education and service industries. In recent years, TRIZ has been integrated with Artificial Intelligence (AI), which further improves innovation efficiency through automated patent analysis and intelligent problem-solving. In the field of education, TRIZ optimizes teaching design, improves curriculum design, optimizes teaching strategies, cultivates students' innovative thinking and solves systematic contradictions in teaching through tools such as Segmentation Principle and Feedback Principle. For example, Langfang Normal University has built a framework of classified teaching through the "TRIZ+AI" model, which accurately solves the contradiction between personalized teaching and limited resources [2]. This practice shows that TRIZ provides scientific methodological support for educational innovation and helps cultivate innovative talents adaptable to complex situations.

2.2 Applicability of TRIZ Theory to Writing Instruction

Through a comprehensive analysis of TRIZ Theory, it can be found that it has high TRIZ Theory has a high applicability to writing instruction. Firstly, the core of TRIZ Theory lies in a systematic analysis and solution of problems, which is highly consistent with the complexity of writing instruction. Writing instruction can be regarded as a complete system, composed of several interacting subsystems including teachers, students, teaching materials, technical tools and teaching environment. The system analysis framework of TRIZ can help educators clarify the connections and constraints between these elements, thereby optimizing the teaching structure [3]. Secondly, there are various contradictions in writing instruction. For instance, there is a contradiction in resource, which is between "improving writing quality" and "shortening evaluation time". Additionally, there is a contradiction between "expanding (the depth of content)" and "students' limited language competence". Teachers can accurately identify the core contradictions in writing instruction through its systematic problem analysis tools, thereby improving the pertinence

and efficiency of teaching strategies. Finally, TRIZ advocates the orientation of "Ideal Final Result (IFR)", that is, pursuing the system to achieve maximum benefits with minimum cost. In writing instruction, IFR is reflected in students' independent, efficient and high-quality writing output with minimal teachers' intervention. In a nutshell, TRIZ guides the continuous evolution of teaching strategies towards this goal through methodology, promoting teaching from "teacher-led" to "student-centered", and from experience-driven to systematic innovation.

3. Analysis of Core Contradictions in Writing Instruction Based on TRIZ Theory

Based on the contradiction analysis principle in TRIZ Theory, the core problems in English writing instruction in private colleges and universities can be summarized into a systematic contradiction of three dimensions:

3.1 Contradiction in Teaching Process: Imbalance between Unified Teaching and Individualized Needs

In English major writing instruction in private colleges and universities, one of the core contradictions lies the systematic imbalance between teachers' unified teaching process and students' individualized learning needs. This contradiction is first reflected in the contradiction between the "overall training" mode and the demand for "targeted progress": traditional English writing instruction typically follows a standardized approach, with teachers delivering lessons according to a uniform syllabus and schedule. This approach fails to accommodate the individual differences and learning needs of various students. [4]. Secondly, there is a contradiction between "time lag" and "immediate demand in writing feedback". For writing instructors, it usually takes a longer time to feedback, while students need immediate feedback during the active period of writing thinking to effectively correct mistakes. Lagging feedback leads to the reduction of efficiency in both teaching and writing [5]. From the perspective of TRIZ Theory, such contradictions shall be defined as "the mismatch between functions and resources" of the system, and its solution lies in the optimization of the system by reconstructing teaching processes and introducing immediate feedback mechanisms.

3.2 Contradiction in Students' Competence: A Gap between Learning Motivation and Comprehensive Expression Competence

In addition, there is a significant contradiction between English major students' learning motivation and their overall language competence in private colleges and universities. On the one hand, students generally have a strong "exam demand", eager to obtain certification or employment edges through exams. Although this external motivation drives their learning behavior, it has not been effectively translated into writing competence. On the other hand, limited by their weak English basics (such as insufficient vocabulary and unskilled grammar), students find it difficult to translate their motivation into fluent and accurate language output, especially in writing and oral output. In addition, examination orientation further exacerbates this gap. Students overly rely on templated structures and advanced vocabulary to meet scoring standards, but ignore the logic, appropriateness and creativity of language expression [6]. Although this strategy may improve exam scores in the short term, it hinders the cultivation of in-depth language and thinking competence, further forming a gap between goals and abilities. Although students pursue high scores, their comprehensive language competence (such as logical organization, cultural adaptability, critical thinking as mentioned above) have not developed simultaneously, which may ultimately affect their long-term academic and professional competitiveness.

3.3 Contradiction between Limited Teaching Resources and High-Quality Teaching Effects

English majors, especially those in private colleges and universities generally face the core contradiction between insufficient teaching resources and the demand for high-quality teaching. On the one hand, restricted by practical conditions such as a single source of funds (mainly relying on tuition income), serious loss and turnover of high-level teachers and slow update of digital teaching facilities [7], there are obvious deficiencies in both quantity and quality of teaching resources. On the other hand, society's requirements for applied English talents are increasingly high, requiring teachers to balance the cultivation of students' language skills, cross-cultural communication and creativities. The lag in resource investment

directly restricts the effective development of curriculum, teaching practice and personalized learning support. The contradiction between "limited resources" and "high-quality effects" leads to a significant gap between teaching goals and students achievement, which has become a key bottleneck for improving the overall teaching quality. In this regard, TRIZ theory, as many studies have confirmed, can help improve the quality and efficiency of English teaching by scientifically integrating teaching elements and optimizing resource utilization efficiency [8].

4. Applying TRIZ Principles to Writing Instruction: Strategies and Implementations

4.1 Modular Teaching in Writing Instruction under "Segmentation Principle"

"Segmentation Principle" in TRIZ Theory advocates segmenting "the system" into independent parts to improve the adaptability and operability of each. Applying it to English writing instruction means scientifically segmenting a complex writing task or process into several sequential and manageable teaching modules. For example, in micro teaching design, a complete argumentative essay writing task can be carefully divided into six core steps: topic selection and brainstorming, literature reviews (with AI tools), argument and outline construction, first draft writing, peer review, and final revision. Each module corresponds to specific training of competence, gradually guiding students from thinking stimulation to text completion. In the macro curriculum structure, writing competence can also be segmented into five basic dimensions including manuscript and document form, diction, sentence building, paragraph writing and whole composition, according to the Segmentation Principle. Also, teachers can design the teaching plans and teaching processes accordingly. Each teaching module, as mentioned above, shall focus on training a certain goal, such as "sentence diversity" or "paragraph coherence", enabling students to focus on specific skills in order to realized targeted breakthroughs. This modular teaching strategy effectively reduces students' cognitive load, avoids the anxiety and frustration caused by the traditional "one-time composition" teaching, realizes the stepped and systematic improvement of writing competence. It fully reflects the structured problem-solving competence of TRIZ Theory for complex

teaching problems [9]. Meanwhile, this teaching model can be further extended and constructed by integrating in-class and after-class teaching resources to enhance the comprehensiveness of writing ability cultivation [10].

4.2 Closing the Loop in Writing Process under Prior Action Principle and Feedback Principle

Based on the “Prior Action Principle” and “Feedback Principle” in TRIZ Theory, a closed-loop teaching support mechanism throughout the writing process can be constructed. This mechanism emphasizes teachers’ precise intervention before writing and multi-level feedback during writing, with which a closed loop can be formed in students’ writing. Prior Action Principle of TRIZ theory refers to completing the required action in whole or in part in advance [11]. That is, in writing instruction, the mechanism aims to eliminate uncertainty and clarify the path before writing. That is, in pre-writing stages, teachers provide scaffoldings, like high-quality model texts, clear evaluation rubrics and structured writing checklists, so as to enabling students to form a clear understanding of the final goals and evaluation standards. At the same time, aiming at common difficulties of students like argumentation and paragraph development, strategy toolkits (such as logical connectors and citation format) and resource support are provided in advance, so as to reduce students’ writing obstacles in regard of source lacks.

At the “feedback” level, the mechanism displays three-dimensional feedback. Firstly, teacher feedback focuses on macro content conception, text structure and logical argumentation; secondly, peer review is carried out through online collaboration platforms (such as Tencent Documents, Wiki) to promote idea inspiration and language learning among students; thirdly, there is technology-enabled feedback (with AI writing correction tools such as Grammarly and iWrite) to conduct immediate and accurate verification of language forms such as vocabulary and grammar [12]. The three-dimensional mechanism deeply embodied writing feedback into each writing steps, as well as into each draft revision. With all these above, an efficient “writing-feedback-revision” loop can be formed, which significantly improves teaching efficiency and students’ writing quality.

4.3 Realizing Personalized Teaching under Local Quality Principle and Asymmetry Principle

The Local Quality Principle in TRIZ Theory emphasizes placing each part of the system in a state most conducive to its function, making each have different functions. In English writing instruction, this principle is reflected in groups and collaborative learning. To be more specific, teachers should form several learning groups, and accurately identify the roles of each member according to his or her individual advantages in the learning group. For example, in a collaborative writing task, students good at logical organization can take charge of the outline formation of the text, while students with outstanding grammar competence may focus on proofreading and language polishing, and those with rich creativity are responsible for exploration of cases and arguments. Through this role division based on strengths, not only the overall output quality of the group is improved, but also each member gains in-depth practice and confidence improvement in their advantageous fields [13].

At the same time, the Asymmetry Principle advocates optimization of “the system” through differentiated teaching design. When applied to writing task design, it is reflected in the construction of hierarchical writing tasks. For example, teachers can design several tasks of the same topic but different difficulties, from basic (such as framework-guided writing), medium (such as exposition writing) to challenging (such as academic writing) [14], and allow students to choose independently according to their own level. In the same vein, in a same writing task, teachers may require students to finish tasks of different levels, from sentence building, paragraph development to whole composition. Such designs not only ensure that students with weak basics can obtain completable tasks to build confidence, but also provides room for breakthrough and challenge for advanced learners, through which an inclusive and personalized teaching goal is realized.

The combined application of the two jointly constitutes the core of differentiated and personalized teaching: the Local Quality Principle optimizes the collaborative learning while the Asymmetry Principle aims at personalized learning, enabling all students to achieve effective improvement on their original basis and promoting writing instruction from

unified standards to personalized development. This improvement, driven by TRIZ is also highly consistent with the practice-oriented nature of college English teaching reform, providing practical implementation ideas for the innovation of curriculum teaching models [15].

5. Conclusion

Against the background of the deepening globalization process and the wide application of artificial intelligence technology, society has put forward higher requirements for the written communication competence and innovative thinking of English major talents. As a systematic approach, TRIZ Theory provides important theoretical support and practical strategies for the reform of English writing instruction in private colleges and universities. Principles of TRIZ Theory, such as Segmentation Principle, Prior Action Principle and Feedback Principle, when applied to writing instruction, can effectively solve the contradiction between unified teaching and individualized needs in traditional teaching, and promote the transformation of writing instruction mode from “result-oriented” to “process-oriented”, and towards a more refined and intelligent mode. Teachers in private colleges and universities can actively construct a teaching system based on TRIZ principles, and integrate its principles into writing instruction, including task design, teaching process and writing feedback, etc. Also, by modularly segmenting the writing process, forming a closed loop of multi-dimensional feedback, and promoting differentiated teaching and learnings, we can effectively improve students’ writing and innovative competence, thereby cultivating more compound English talents who can adapt to international competition and the needs of the times.

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