# Design Thinking for English Teachers: The Unique Value of Improving Teaching Practice

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**Abstract.** English teachers usually decide on the direction and methods of teaching improvement based on their usual thinking. The current interdisciplinary-themed teaching has become a new requirement for implementing core competencies in English curriculum teaching, posing more significant challenges to teachers. Design thinking for educators can provide ideas for solving this problem. By using design thinking, teachers can choose specific challenging problems to improve teaching. Through a series of processes, they collect issues and ideas, identify the best methods to solve problems, and through prototype testing and improvement, create feasible solutions for teaching to overcome the most challenging issues at present. Through in-depth interviews with teachers and students, research has found that design thinking can play a role as a methodology in primary school English teaching, helping teachers design appropriate interdisciplinary English learning activities stimulating students' interest in English learning, creating new ideas for teaching improvement.

**Keywords:** Design thinking; English teaching; Teaching improvement.

## 1. Introduction

Currently, primary school English teachers often have a single approach in solving the problem of teaching quality. They usually decide on the direction and method of teaching improvement based on their usual practice, which is essentially "nominal but not real". The Ministry of Education issued a primary school English education policy in January 2001, changing the tradition of learning English from the first day of junior high school and requiring primary school students to start learning from the third grade. With the continuous deepening of curriculum reform in primary and secondary schools, more transparent and urgent requirements have been put forward to develop students' core literacy. China's basic education curriculum is shifting from a disciplinary perspective to an educational perspective, and all courses need to play a Chinese role in shaping students' literacy.

The "English Curriculum Standards for Compulsory Education (2022 Edition)" points out that it is necessary to design "interdisciplinary themed" learning activities, strengthen the interrelationships between disciplines, drive the comprehensive implementation of courses, and strengthen practical requirements. This requirement is precisely reflected in the cultivation of core competencies[1]. However, for subject teachers, such learning activities face difficulties in development, implementation, and unsatisfactory results.

Design Thinking, as a teacher, provides a methodology for solving the problems mentioned above. The excellent application of design thinking in various fields enables teachers to use it as an essential method for improving education and teaching. However, in actual practice, it has been found that subject teachers do not have precise research and practice on how to use design thinking, which leads to limited analysis of practical problems that can truly face education and the provision of practical and feasible solutions. Therefore, this study will explore whether primary school English teachers can use design thinking as a guiding ideology to identify innovative ideas for the problems they face in their own teaching, especially interdisciplinary-themed education, and thus determine measures that can be implemented.

## 2. Literature Review

Whether the goal is reasonable is the key to whether a task can be completed. The same applies to primary school English teaching. In the teaching process of primary school English teachers, the design of teaching objectives is a key factor affecting their teaching success and failure. Only scientifically and reasonably setting teaching objectives can teachers improve teaching efficiency and achieve effective teaching.

In "Cross-disciplinary Horizontal Integration Teaching, Aggregating the Advantages and Functions of Discipline Moral Education", Cai Qiling believes that the integrated curriculum under the guidance of the "Nine Key Points" advocates a new curriculum concept of "overall, open, and integrated". And will conduct research at Haihua Primary School, integrating primary school Chinese, nature, and physical education for teaching practice, giving new meaning to "classroom". The school is not only striving to break the situation where students can only learn in the classroom, achieving mutual transfer and promotion of knowledge from various disciplines, but also attempting to place the learning place and space in a larger environment. They believe that this attempt can make students more proactive in learning and improve their learning abilities.

In 1987, Peter Rowe of the Harvard School of Design officially introduced the concept of design thinking in his book "Design Thinking". Design thinking is a human-centered problem-solving approach that utilizes empathy, conceptualization, prototyping, and experimentation to solve real-world problems. Design thinking is a methodology designers use to solve complex problems, explore possibilities through imagination, intuition, and systematic reasoning, and create expected results that benefit end users (customers), in order to find ideal solutions for customers. After decades of development, design thinking has been widely applied in fields such as education, business, and engineering, which is important in promoting talent and technological innovation [2].

In the field of education, design thinking provides a framework for teachers to solve practical problems. It endows them with cognitive skills and methods to solve problems, aiming to solve various complex and emerging problems in education [3]. The second edition of "Design Thinking - A Toolkit for Educators" released by IDEO [4] provides a Design Thinking for Educators (DT4E) process, which is divided into five stages: discovery, interpretation, creation, experimentation, and evolution, to guide the development process from identifying design challenges to identifying and building solutions.

Arvind Mallik [5] introduced various possibilities of student-centered design thinking in the educational environment, proposing a new proposition on how educators can implement innovative ideas that follow a systematic methodology of developing breakthrough philosophy and creatively solving problems. The entire process is essentially iterative, through structured development, review, design changes, and improvements until completion. It has four stages: seeking, imagining, prototyping, and sharing.

For teachers, being too rigid in their strict presentation of teaching ideas is challenging to improve, unable to break away from old thinking processes and enter new perspectives of thinking, and challenging to innovate teaching with ease. The design thinking of educators is a holistic and creative problem-solving approach, which involves introducing innovative teaching methods and, with the help of educators, achieving attention to students and their emotional responses, thereby addressing key educational and teaching challenges.

Compared to using design thinking as a guide for students' hands-on activities, researchers have paid less attention to the differences and integration between teacher design thinking and instructional design. Unlike traditional teaching system design that seeks to achieve teaching objectives optimally, in the role of teachers, design thinking can help teachers better understand students' needs and interests, thereby creating more attractive and effective teaching plans. Through teaching design methods, teachers can systematically plan and organize the teaching process, ensuring the coherence and effectiveness of teaching. But design thinking emphasizes innovation and flexibility, as it can help teachers think about problems from different perspectives and provide diverse solutions.

Overall, discovery and imagination are an essential part of design thinking, which is also the focus of teachers' work. This kind of design thinking can rely on the teacher's intuitive ability to interpret observed things and form their own emotionally meaningful ideas and skills, ultimately being able to apply and guide students.

## 3. Teaching System Design for Integrating Design Thinking (DT-ID)

Design thinking is a thinking mode that believes that teachers can create change, revolve around clear design intentions, select specific challenging problems as the goal of improving teaching, collect problems and ideas through a series of processes, identify the best methods to solve problems, and through prototype trial and improvement, create feasible solutions for teaching to overcome the most challenging problems at present. (Figure 1)

This design method can rely on the teacher's intuitive ability to interpret what you observe and form their own emotionally meaningful ideas and skills.

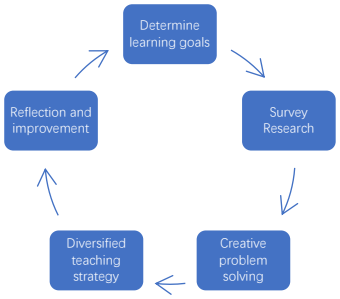


**Figure 1.** Integrated Design Thinking Teaching System Design (DT-ID) Model

Teachers can integrate design thinking with instructional design through the following methods:

1) Determine Learning Objectives (I): First, teachers must first clarify the teaching objectives and expected outcomes that students should achieve. Design thinking can help teachers think about achieving these goals through innovative means and stimulate students' interest and motivation in learning.

2) Survey and Research (I): Teachers can conduct surveys and research to understand students' backgrounds, interests, and learning needs. Design thinking can help teachers design teaching content and activities that are more tailored to students' actual needs from the perspective of students.

3) Creative Problem Solving (I): Teachers can use design thinking methods to propose creative problems and stimulate students' thinking and creativity. By guiding students to explore and solve problems, teachers can combine design thinking with instructional design to cultivate students' innovative thinking and problem-solving abilities.

4) Diversified teaching strategies (M): Teachers can use the principles of design thinking to design diverse teaching strategies and activities to meet different students' learning needs and styles. By providing diverse learning experiences, teachers can stimulate students' interest and initiative in learning.

5) Reflection and Improvement (R): Teachers should regularly reflect and evaluate their teaching design and implementation effectiveness. Design thinking can help teachers identify problems and opportunities for improvement, continuously optimize teaching design, and improve teaching effectiveness.

In summary, teachers can organically combine design thinking with instructional design by clarifying learning objectives, conducting research, solving creative problems, implementing diverse teaching strategies, and reflecting and improving methods, improving teaching quality and students' learning experience.

# 4. Primary School English Interdisciplinary Learning Activities Based on DT-ID Model

In order to verify whether primary school English teachers can get the DT-ID model, the researchers selected two English teachers (Teacher A and Teacher B) from one primary school and students from one class in fifth grade as the research subjects. Teacher A is a tester of the DT-ID model, while Teacher B is a reviewer. Researchers will determine whether teachers can understand and apply the DT-ID model, including differences from traditional instructional design models; Utilize this model to carry out interdisciplinary integrated teaching processes, identifying difficulties and personal feelings.

Given the many challenging tasks in teaching, teachers have become accustomed to adopting more "mature" teaching practices, and many problems among students have been difficult to solve. This study will introduce the DT-ID model to teachers. Teachers, with the support of researchers, attempt to improve their teaching practices.

To collect data on the process of teacher use, the researcher designed an interview outline and participated in the teacher's teaching improvement activities through in-depth observation. And use interdisciplinary teaching activity design as the output of the DT-ID model.

## 4.1. Teacher's understanding and understanding of the DT-ID model

At the initial contact with Teacher A, the researcher introduced the purpose and basic process of the DT-ID model, and informed them that the model is helpful in solving interdisciplinary integrated teaching. However, the teacher initially did not fully agree with the model. She believes that learning English itself poses great challenges, and interdisciplinary approaches may make it even more challenging. However, after understanding the basic processes and design thinking methods, she was surprised by the learning approach emphasized by the idea. Through investigation, she applied DT-ID to interdisciplinary education to discover learning challenges, and believed that combining knowledge from her own discipline with other disciplines was also a key focus.

## 4.2. Attempt of interdisciplinary teaching activities based on DT-ID

To effectively integrate interdisciplinary knowledge, Teacher A attempts to determine teaching objectives, analyze teaching content, and combine teaching knowledge with other subject knowledge based on a clear understanding.

After 2 weeks of effort, Teacher A designed an interdisciplinary integrated English course using the DT-ID model. Combine the teaching content of this course with the design thinking mode, create this course from the students' perspective, use multimedia teaching equipment, stimulate students' interest in learning, and improve practical abilities.

### 4.2.1 Learning objectives

Teacher A has set the learning objectives for this lesson as follows:

1) Can read and write related words about clothing;

2) Imitate the dialogue in the text and ask for information about clothing and purchasing methods in English.

### 4.2.2 Investigation and Research

In response to the teaching objectives identified above, Teacher A combined his teaching practice and based on some students as teaching objects, summarized and formed the problems that need to be solved in this interdisciplinary-themed teaching:

1. Regarding the potential problems that students may have in their learning and this course:

(1) For English learning, students mainly focus on exams and rarely use English for communication, resulting in difficulty and boredom towards English;

(2)It is challenging to comprehend particular clothing words in this lesson.

2. Regarding the problems that teachers may encounter in their teaching and in this lesson:

(1) Teacher A is accustomed to the "teacher-centered" teaching method, which leads to low students' learning initiative and interest in English;

(2) If the teacher talks too much, it may be difficult for students to keep listening attentively throughout a class; Teachers talk less, and students may not be able to get started when completing tasks themselves, resulting in low effectiveness. Creative problem-solving

For the new words that appear in this lesson, the teacher envisions having students preview the text and recognize the words that need to be learned in this lesson. Through group competitions, students can brainstorm and think about other words related to clothing, stimulating their enthusiasm and initiative in learning. Finally, the teacher can categorize and organize the obtained words, such as tops, pants, skirts, etc., to assist students' subsequent learning.

### 4.2.3 Diversified teaching strategies

Diversified teaching models can be said to have emerged to compensate for the traditional exam oriented education model. In English teaching, primary school English teachers must be clear about the various problems that primary school students currently face in English learning. Only then can they develop corresponding teaching methods based on students' personalities and learning needs to change the traditional teaching mode. Then, they can apply diverse teaching strategies to primary school English teaching, helping and promoting students' all-round development, To lay a solid foundation for their future English learning.

Strategy 1: Using multimedia technology to enhance interest in word learning

By investigating students' learning needs, it was learned from their reactions that students are more interested in multimedia teaching than simply explaining knowledge. Therefore, multimedia assisted teaching was adopted for vocabulary learning in this lesson. In this lesson, students may encounter words that are difficult to understand. At this point, multimedia can be used to explain them. For example, video animations can be used to represent the content represented by the word, and then multimedia can be used for practice of splitting, explaining, and following through. When using multimedia for teaching, students' focus and interest in learning significantly improve, indicating that "student-centered" teaching can better encourage students to actively learn.

Strategy 2: Group cooperative learning to increase activity

In addition, students are more inclined to interact and communicate with everyone in the classroom because it can stimulate their emotions and increase their activity. Therefore, in learning English dialogues, students can be divided into small groups to practice. Divide students into two groups, with each group completing the practice, and the other group conducting error-finding evaluations and discussing with each other to improve their oral proficiency. In the course of imitating the dialogue in the text to purchase clothing, the teacher can set a purchase scenario for each group to prepare, including determining the role division, selecting what kind of shopping to simulate, how many participating students are needed, and what questions to ask. Teachers can provide prompts and guidance during the students' practice process, and at the same time, praise the advantages of the students' practice process and correct the shortcomings after the practice is completed.

### 4.2.4 Peer review and reflection

Teacher A uses the DT-ID model as a user and teaches, while Teacher B evaluates the course and is the evaluator of this process.

After a more detailed understanding of Teacher A's curriculum design, Teacher B has two suggestions:

When designing interdisciplinary teaching based on the DT-ID model, attention should be paid to determining the theme and breaking down disciplinary barriers. There are few cases of interdisciplinary instruction in primary school English, and most of them still rely on traditional teaching of English knowledge. They result in a rigid English classroom, low student enthusiasm, and poor teaching effectiveness. Many English classrooms attempt interdisciplinary teaching. Still, most of them are not fluent enough to integrate knowledge from other disciplines, resulting in students being unable to grasp the key points and making learning more difficult. Therefore, breaking down disciplinary barriers is a problem. Under the DT-ID mode, teaching can effectively integrate subject

knowledge under the same theme, ultimately forming an interdisciplinary teaching system under the same article.

The second is that the interdisciplinary themed teaching design under this model should highlight the dominant position of English and organically integrate various disciplines. Another issue is that when conducting interdisciplinary thematic teaching, one cannot grasp the proportion of each subject, which may weaken the English subject status and lead to deviation from teaching objectives. In this situation, it is necessary first to clarify that the teaching focus is on English knowledge, while the main task of other disciplines is to assist in explaining English knowledge so that students can better understand English knowledge and increase their interest in learning English. Therefore, the key issue to focus on when designing teaching is how the English part can better coordinate with other disciplines. This requires that the proportion of other subjects in the design should not be too large, and the scope of expansion should not be too broad. English should always maintain its dominant position, and at the same time, students can use the DT-ID model to think about English knowledge and deepen their understanding.

Teacher A's reflection on this teaching session believes that students' learning English poses significant challenges, and interdisciplinary learning makes learning more difficult. However, after students adapt to the DT-ID mode of learning under design thinking, their interest in English learning gradually increases and they will more want to communicate with classmates in English and showcase themselves.

## 5. Research Conclusion and Discussion

### 5.1. Research Conclusion

Design thinking is often used to enhance students' ability to solve practical problems in life, while requiring them to apply the knowledge they have learned across disciplines. The DT-ID teaching model that integrates design thinking can potentially promote students to reach higher levels of learning.

Through experiments, it can be seen that the DT-ID teaching model still poses great challenges for primary school English teachers. Teachers may not be able to deeply understand the core points of this teaching model during the implementation process, resulting in deviations in the teaching direction. In addition, it is easy to mistake this teaching design model for a teaching model by combining it with interdisciplinary or other teaching forms.

This study demonstrates that using the DT-ID teaching model based on design thinking in primary school English teaching can encourage teachers to integrate more student-centered learning methods, such as using more brains and discussing with peers. From peer review and self reflection by teachers, it can be seen that the DT-ID teaching model based on design thinking can also play an essential role in cultivating innovative abilities.

### 5.2. Discussion

By implementing the above research, researchers believe that the DT-ID model is not only a method to change teachers' teaching ideas, but also helps cultivate students' creativity. In this study, based on the DT-ID model in instructional design, students will also develop innovative abilities. However, the development of this creative ability does not come from the teaching conten. Still, using innovative teaching methods by teachers brings students a new learning experience that traditional teaching cannot achieve. Therefore, it will also provide students with thinking training and problem-solving abilities, which are the most crucial parts of creativity.

In addition, instructional design based on design thinking is not completely static or linear, and several issues need to be addressed.

1) From the essence of using design thinking, DT-ID teaching design based on design thinking requires teachers to dare to change their accustomed teaching methods, shift from the perspective of "focusing on teaching difficulties and key points" to "focusing on students' difficulties", and involve

more than just learning questions, Any factors that have an impact on students' participation in the learning process, such as classroom space, table and chair layout, poster design, teaching organization form, types of teaching resources, teacher and student attire, etc., are often considered indirect influencing factors for learning, and can become incentives for teachers to improve teaching, thereby bringing better learning experiences to students.

2) From the perspective of promoting the actual occurrence of learning, the DT-ID teaching model based on design thinking should be student-centered, valuing students' ideas, allowing them to showcase the knowledge they have learned, unleashing their imagination throughout the entire process, and promoting the development of students' creativity.

3) From the perspective of improving teaching design models, the innovation ability of both teachers and students is equally important. Integrating design thinking into teaching models should also follow the principle that "design thinking is a dynamic thinking process", and the corresponding teaching models should also become more diversified with the continuous development of education.

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