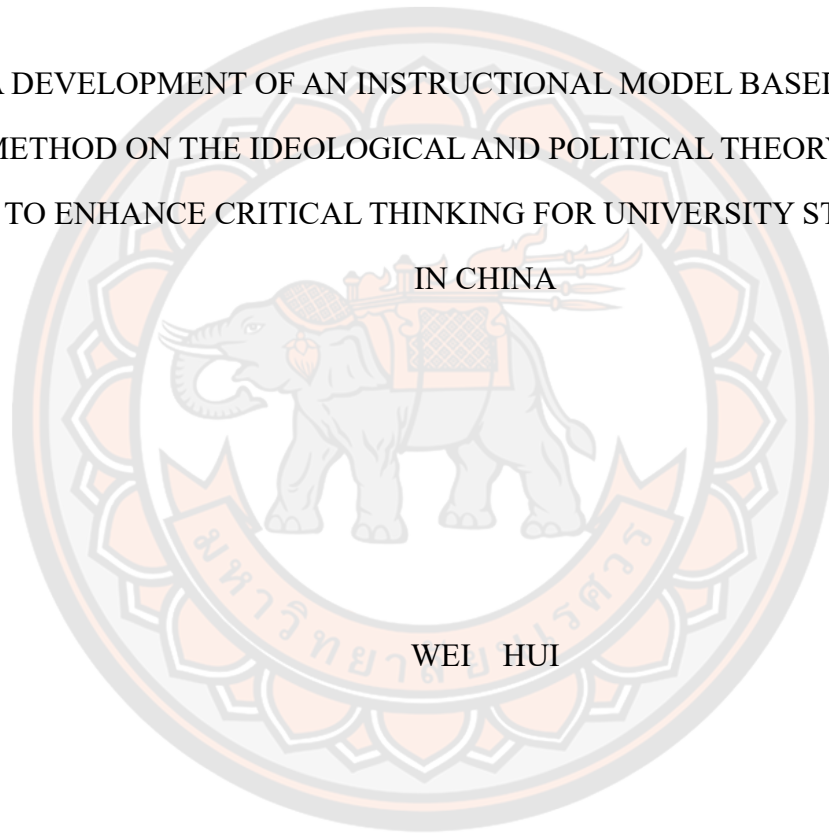




A DEVELOPMENT OF AN INSTRUCTIONAL MODEL BASED ON CASE
METHOD ON THE IDEOLOGICAL AND POLITICAL THEORY COURSE
TO ENHANCE CRITICAL THINKING FOR UNIVERSITY STUDENTS
IN CHINA



A Thesis Submitted to the Graduate School of Naresuan University
in Partial Fulfillment of the Requirements
for the Doctor of Education in Curriculum and Instruction

2024

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IN CHINA"

By Wei Hui

has been approved by the Graduate School as partial fulfillment of the requirements
for the Doctor of Education in Curriculum and Instruction of Naresuan University

Oral Defense Committee

..... Chair
(Associate Professor Dr. Charin Mangkhang, Ph.D.)

..... Advisor
(Assistant Professor Dr. Henry Yuh Anchunda, Ed.D.)

..... Co Advisor
(Associate Professor Dr. Wareerat Kaewurai, Ph.D.)

..... Internal Examiner
(Associate Professor Dr. Monasit Sittisomboon, Ph.D.)

..... Internal Examiner
(Assistant Professor Dr. Aumporn Lincharoen, Ph.D.)

Approved

.....
(Associate Professor Dr. Krongkarn Chootip, Ph.D.)
Dean of the Graduate School

Title	A DEVELOPMENT OF AN INSTRUCTIONAL MODEL BASED ON CASE METHOD ON THE IDEOLOGICAL AND POLITICAL THEORY COURSE TO ENHANCE CRITICAL THINKING FOR UNIVERSITY STUDENTS IN CHINA
Author	Wei Hui
Advisor	Assistant Professor Dr. Henry Yuh Anchunda, Ed.D.
Co-Advisor	Associate Professor Dr. Wareerat Kaewurai, Ph.D.
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ABSTRACT

The objectives of this research were to 1) Study the use of the Case Method in an instructional model demonstrates its effectiveness in enhancing critical thinking. 2) develop and assess the quality of an instructional model based on the case method to enhance the university students' critical thinking, 3) implement and study the results of the university students' critical thinking after learning with the instructional model based on the case method, and 4) evaluate students' satisfaction with the instructional model. Four research and development steps were used for instructional model development.

The research followed four developmental stages to design and implement the instructional model. A total of 51 third-year students from Guangxi University of Science and Technology were randomly selected using clustered random sampling

from 10 classes. Data were analyzed using descriptive statistics, t-tests, the Effectiveness Index (EI), and content analysis.

The research instruments included pre- and post-tests designed according to the critical thinking components such as interpretation, analysis, evaluation, inference, and explanation. The instruments also comprised structured interviews with experts, an instructional model, an instructional model manual, a critical thinking assessment test, a satisfaction questionnaire, and evaluation forms.

The research results revealed as follows:

1. The research results revealed that the most effective methods for operationalizing the assessment of critical thinking were identified, along with an instructional model based on the case method that best enhances critical thinking in ideological and political theory courses.

2. The results of instructional model development revealed that:

2.1 An instructional model was developed with five components: principle, objective, content, learning process, and evaluation. The results also revealed that the learning process consists of five main steps: content explanation, case presentation, group discussion, synthesis and reflection, and assessment and feedback.

2.2 The developed instructional model was rated at the highest level of appropriateness ($\bar{X}= 4.64$, $SD= 0.58$).

2.3 The developed instructional model based on the case method had an effective index of 0.58.

3. The implementation of the instructional model revealed that:

3.1 After learning the instructional model based on the case method, students excel in critical thinking ($\bar{X}=24.41$, $S.D.=1.28$)

3.2 Students' critical thinking was significantly higher after the implementation of the instructional model ($p < 0.01$).

4. Students' satisfaction with the instructional model learning process

was rated at the highest level ($\bar{X}=4.72$, $SD= 0.56$).



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"My last tribute is to those who know I am not perfect but still love me". In the brief span of just one year, from 2023 to 2024, during my PhD journey, I lost both my husband and beloved fourteen-year-old son. Their departure broke me in ways I could not have imagined, plunging me into the depths of despair. Grief became my constant companion throughout this research, and depression often clouded my days. But even in the darkest times, I found the will to keep going and finish what I had started. My husband and son may no longer be with me in this world, but their love remains, and it is that love, along with the support of my mentors and friends, that has carried me

through.

This work is dedicated to the memory of my son, whose love continues to guide me, and to all those who helped me bear the weight of grief while encouraging me to complete what I had started.

"In the depth of winter, I finally learned that within me there lay an invincible summer." – Albert Camus.

Wei Hui



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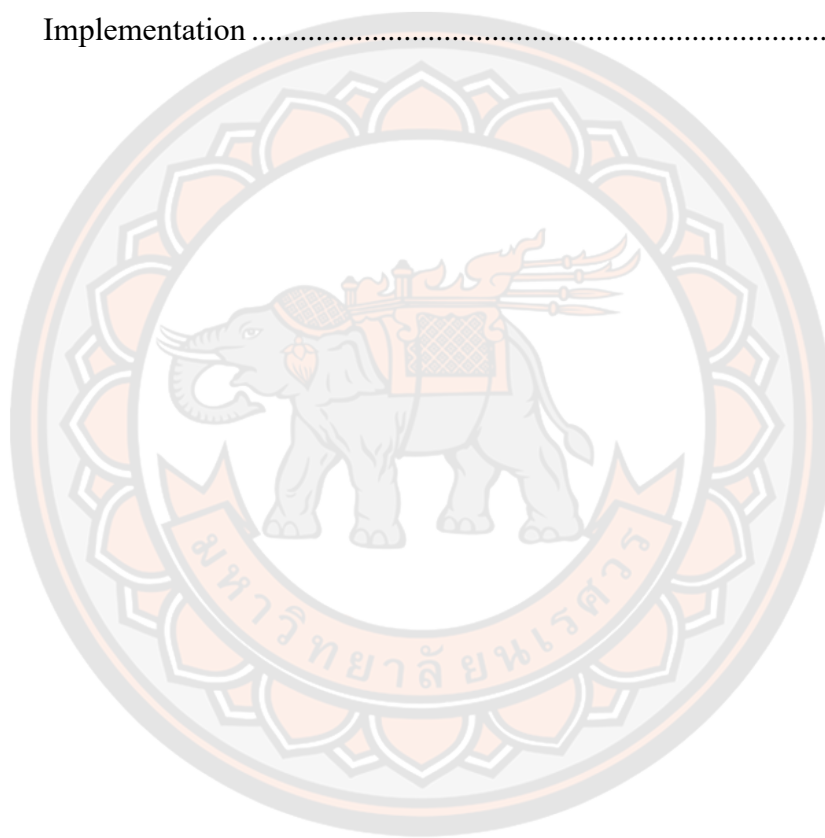
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CHAPTER I

INTRODUCTION

1. Background of Study

Critical thinking enables individuals to evaluate information and arguments objectively, helping them make informed decisions based on evidence rather than personal bias or opinion (Halpern, 2014). Critical thinking is an essential skill for success in all areas of life. It involves the ability to analyze, evaluate, and synthesize information to make informed decisions and solve problems effectively. In today's complex and rapidly changing world, individuals are faced with a wide range of challenges and must be able to think creatively and critically to succeed. Developing critical thinking is becoming increasingly important for personal and professional growth (Butterworth, 2005).

"Higher education must create conditions for knowledge to be acquired and disseminated in a spirit of intellectual independence and critical thinking that is mindful of social responsibility. It must educate students to become knowledgeable and responsible citizens who can think and analyze social problems in a critical spirit and seek, on their initiative, to participate in solving them" (UNESCO., 1998). Therefore, the cultivation of critical thinking is a problem that must be paid attention to and actively solved in any subject of education.

A report by the Association of American Colleges and Universities (AAC&U) found that employers seek candidates who possess strong critical thinking and problem-solving skills. Of employers surveyed, 95% stated that they value these skills more than a candidate's undergraduate major (Associates, 2013). A report by the Foundation for Critical Thinking found that critical thinking is essential for success in college and the workforce, as it enables individuals to make informed decisions, analyze complex information, and solve problems (Paul, 2006).

Furthermore, a survey of 300 US employers reported that 33% of new employees lacked the skills needed for entry-level positions, and 31% lacked the critical thinking necessary for employment (AAC&U, 2010). Eighty-one percent of the employers surveyed requested more critical thinking instruction for their current and prospective workforce. This call for a change in the way students are educated has been heard around the world (Butler, 2012).

In summary, the research consistently shows that critical thinking is highly beneficial for college students, both academically and professionally. Developing these skills can lead to higher academic achievement, better employment prospects, and improved decision-making abilities. Only by enhancing students' critical thinking can they effectively and creatively employ knowledge to find solutions to real-world problems (Stephenson & Sadler-McKnight, 2016).

Critical thinking is not only vital for personal and professional development but also plays a crucial role in fostering democratic engagement and social responsibility. Ennis (1996) emphasized that critical thinking allows individuals to participate more effectively in democratic processes by enabling them to critically analyze political claims, assess the credibility of sources, and engage in reasoned debate. This is especially important in a globalized world where information is abundant, and the ability to discern truth from misinformation is essential. Furthermore, critical thinking contributes to lifelong learning, allowing individuals to adapt to new challenges and environments by continuously evaluating and updating their knowledge and beliefs. By nurturing critical thinking, education empowers students to become more independent thinkers, capable of challenging assumptions and contributing to societal progress in meaningful ways.

Recognizing the critical importance of this skill set, some Chinese scholars used the California Critical Thinking Orientation Questionnaire to compare 465 Chinese and Japanese nursing undergraduates and found the overall scores and

most sub-item scores for critical thinking abilities of students from China and Japan tend to be at a moderate level. Chinese students scored higher in analytical skills, systematization skills, and in critical thinking (Xiaomei & Xiaoyuan, 2005). When the findings of this study were compared with those of Facione et al. (1994), all the scores for the sub-scales and the total score of the test were lower than Western students. Chinese scholar Luo Qing Xu (2001) surveyed nearly 400 Chinese college students and found that their "personality tendency" of critical thinking, i.e., critical spirit, was significantly weaker than that of American students. The study found that 30.9% more Chinese students scored below 280 on a test of critical thinking tendencies than American students (Xu & H, 2001). Fan and See (2022) present the results of a systematic review of international studies that compare the critical thinking of Chinese students with students of other nationalities. After screening and comparing, the scholars found that five studies on critical thinking dispositions suggest that Chinese students were less disposed to critical thinking. Consequently, Chinese students often face difficulties in various domains, including analysis, evaluation, inference, interpretation, and problem-solving. A key contributing factor to these challenges is the ineffectiveness of traditional pedagogical approaches in fostering critical thinking. Considering this, there is an urgent need to design and implement a more effective instructional model aimed at improving critical thinking.

To bridge this gap, The Ministry of Education held the study and implementation Xi General Secretary of Congress, China Association for Science and Technology for the Tenth National Congress important speech spirit symposium, clearly put forward to strengthen innovative personnel training, pay more attention to talent independent cultivation, pay more attention to the scientific spirit, innovation ability, critical ability cultivation, let more teenagers with science dream, sets up the innovation ambition (China, 2021).

The failure of traditional teaching methods to improve students' critical thinking is the main reason for this problem. To address the lack of critical thinking among Chinese college students, there is a need for a shift towards a more student-centered teaching approach. The Case Method is a teaching approach that involves the use of real-life situations or cases as the basis for learning. In this method, students are presented with a complex scenario or problem, and they are required to analyze, evaluate, and synthesize information to develop a solution or recommendation. Research has provided empirical evidence to prove that the Case Method can be an effective way to enhance the critical thinking of university students. The significantly better performance in the overall total CCTST and subscales' scores obtained by case-based learning program participants compared to lecture-based program (Kaddoura, 2011). Similarly, Camiah (1998) conducted a study and found out that nursing faculty who perpetuated a didactic approach to teaching and learning failed to develop in students a sense of creativity and critical thinking. This author proposed that student-centered approaches to education, such as case-based learning, develop critical thinking skills more than teacher-centered approaches. Silverman (1996) demonstrated a relationship between the Case Method and critical thinking and concluded that the Case Method fosters analysis and critical thinking skills more than the traditional lecture-based teaching method. This author asserted that case-based learning provides students with the opportunity to ask important analytical questions, consider various responses, and argue for or against various situations. Dinan (2002) claims that Case-based Learning also enables students to think critically through situations and evaluate several possible solutions, rather than merely identifying the right answers such as in didactic teaching. The Case-based Method helps students develop critical thinking by providing them with opportunities to develop students high-level critical thinking and cognitive skills. In a study from Pakistan, 220 undergraduate students studying in 11 departments of the Faculty of Arts, University

of Karachi, were interviewed about their perceptions of the best and most effective teaching methods and the reason for that. In comparing various teaching methods in higher education, the case teaching method is productively used to develop critical thinking and problem-solving skills (Sajjad, 2010). A recent study examines the primary teaching methods employed by 230 university instructors from Spain and Latin America in their classrooms and the approaches they deem most effective for fostering critical thinking skills. A notable correlation exists between teachers' methodologies and those they regard as most effective. Instructors who emphasize Analyzing/Organizing, Reasoning/Augmenting, and Evaluating tend to view case studies as an effective teaching tool. Among the various methods, case studies are generally considered the most effective for enhancing critical thinking (Bezanilla et al., 2019).

Karns (2005) asserted the importance of providing strategies and activities that fit the students' preferences and perceptions. To provide evidence, he conducted a study to investigate students' perceptions of learning activities using survey responses from 227 students at 8 universities in the United States. He examined students' preferences and the effectiveness of some learning activities and found that according to students, internships, class discussions, and case analyses were the learning activities that contributed the most to their learning. Therefore, he claimed that responding to students' preferences by these strategies helps promote student learning.

Ideological and Political Theory is a mandatory course for all university students in China, as stipulated in the document 'Opinions on Further Strengthening and Improving the Ideological and Political Theory Course in Colleges and Universities,' issued jointly by the Chinese Propaganda Department and the Ministry of Education (2008). The course primarily focuses on elucidating national development policies, goals, and the interplay between national conditions and the

personal growth of young people. Recognizing the critical importance of this subject, both the Ministry of Education and the Publicity Department of the CPC Central Committee have been keen on reforming its teaching methodologies.

Guiding university students to establish a scientific critical spirit towards societal issues and erroneous ideologies, and enhancing critical thinking, reflects the inherent characteristics of the Ideological and Political Theory course. This scientific spirit of critique is grounded in rationality. It necessitates factual evidence, evaluations of social development levels, and stringent logical reasoning. Within the framework of Ideological and Political Theory classes, we strive to clarify certain perplexing issues for students. For instance, while we have established the basic system of socialism with Chinese characteristics, its developmental trajectory has witnessed twists and detours, and the nation's economic, political, and social progress has experienced fluctuations. Despite the globally recognized achievements of socialism with Chinese characteristics, prominent issues related to imbalanced and insufficient development remain unresolved. There are still many shortcomings in the realm of people's livelihood, a pronounced income disparity persists, intertwined social conflicts and problems are evident, the national governance system and its capability need strengthening, ideological struggles remain intricate, new national security risks emerge, and there are evident weak links in the party's construction, among others. The primary aim of Ideological and Political Theory courses is to assist university students in accurately analyzing and evaluating the changes that have taken place in China, as well as understanding the underlying reasons for these changes. It helps students understand, interpret, analyze, and address China's specific issues, empowering them to apply scientific theoretical thinking and correct value orientations to analyze societal contradictions and reflect upon ideological dilemmas. The plethora of cases in real-world political and social life provides a case-based

instructional model aimed at enhancing university students' critical thinking with natural advantages and strong relevance.

Therefore, the content and educational objectives of this course are intrinsically linked with critical thinking. Cultivating critical thinking within Ideological and Political courses enables students to question and analyze the knowledge they acquire comprehensively and profoundly, unveiling underlying principles. This, in turn, allows for rational value judgments, fostering the students' critical spirit (Wei, 2019).

Simultaneously, The Ministry's Ideological and Political Work Department also explicitly advocates for the meticulous design and organization of teaching activities. It encourages the exploration of diverse teaching methods, including thematic and case-based teaching, to not only impart knowledge but also to cultivate critical thinking skills. The aim is to foster an environment where students can critically analyze and evaluate national policies, development paths, and societal conditions. This approach not only strengthens and elevates the level of Ideological and Political Theory education but also contributes significantly to the development of critical thinking abilities among university students.

Overall, Critical thinking is an essential skill that enables individuals to understand and address situations by considering all available facts and information. It involves core cognitive skills such as interpretation, analysis, evaluation, inference, and explanation. The Case Method is an instructional approach designed to enhance these skills by teaching students how to dissect cases, identify underlying issues, propose viable solutions, and evaluate alternative courses of action. The development of an instructional model grounded in the Case Method aims to significantly enhance students' critical thinking. This model encourages active learning through the analysis of real-life cases, fostering an interactive environment where students can exchange ideas under the guidance of their instructors. The pedagogical framework involves

analyzing, understanding, and developing solutions, comparing different perspectives, and ultimately drawing conclusions based on rigorous analysis. In summary, integrating the Case Method into the instructional model is expected to substantially enhance students' critical thinking, equipping them with the cognitive tools necessary for effective problem-solving and decision-making.

1.2 Research Questions

The following research questions guided and formulated the basis for the research study:

- 1) How can the Case Method be effectively utilized in an instructional model to enhance university students' critical thinking?
- 2) What are the qualities of an instructional model based on the Case Method that can be developed to enhance university students' critical thinking?
- 3) How effective is the instructional model based on the Case Method in enhancing university students' critical thinking?
- 4) What is the level of student satisfaction with learning through an instructional model based on the Case Method to enhance university students' critical thinking?

1.3 Research Objectives

The development of an instructional model based on the Case Method to enhance university students' critical thinking had the following objectives:

1. To study how the Case Method can be used in an instructional model to enhance critical thinking.
2. To develop and assess the quality of an instructional model based on the Case Method to enhance the university students' critical thinking.
3. To implement and compare students' critical thinking before and after learning through an instructional model based on the Case Method, designed to enhance university students' critical thinking

4. To evaluate the instructional model's satisfaction with learning through an instructional model based on the Case Method to enhance university students' critical thinking.

1.4 Research Hypothesis

University students' critical thinking after learning through an instructional model based on the Case Method in the Ideological and Political Theory course is higher than before.

1.5 Scope of Steps

The scope of this study is divided into the following four different stages:

Stage 1: Studying the use of the Case Method in an instructional model demonstrates its effectiveness in enhancing critical thinking.

To determine the most effective methods for operationalizing the assessment of critical thinking and to identify the pedagogical and case-based approaches that best enhance critical thinking in ideological and political theory course, the researcher used the following scope:

1. Scope for the Content

The content of this stage includes:

1.1 Studied different educational philosophies and learning theories that support the use of the Case Method to enhance critical thinking.

1.2 Principles of the Case Method, case activities, the Case Method learning steps/process. Define clear and measurable learning objectives related to critical thinking that can be targeted through case-based instruction. Examined strategies for incorporating case studies into existing curricula or designing new courses that emphasized critical thinking development.

2. Data source scope

Data were gotten from:

Experts: Four experts were interviewed to learn how to use the case method to arrange and implement teaching activities and enhance university students' critical thinking. These experts have been meticulously selected based on rigorous criteria pertinent to the objectives of this research study. Each possesses a doctoral degree and has accrued a minimum of five years of professional experience in disciplines intimately related to the case method and department of curriculum and instruction. For advice on the following: principles of the Case Method, case activities, and the Case Method learning steps/process. Defined clear and measurable learning objectives related to critical thinking that can be targeted through case method instruction. Examined strategies for incorporating case studies into existing curricula or designing new courses that emphasize critical thinking development.

3. Scope for Variables

The variables studied in this stage were:

Principles, teaching steps, and activities important features of the Case Method, roles of learners and lecturers, implementation of the Case method, and good practice to use the case method in the course to enhance critical thinking.

Stage 2: Developing and assessing the quality of an instructional model based on the Case Method to enhance the university students' critical thinking.

To develop and assess the quality of an instructional model based on the case method for enhancing university students' critical thinking, the following scope was considered.

1. Scope for the Content

The content of this stage includes democratic political principles development, cultural, and economic development, China's strategic security and global diplomacy, and people's livelihood Issues. This content was focused on

enabling students to step through the components of critical thinking. The instructional model was implemented over 4 weeks.

2. Data source scope

At this level, data was obtained from the following sources:

2.1 These experts were selected based on explicit criteria to ensure academic rigor and reliability. Specifically:

a) Two experts in curriculum and instruction, one in measurement and evaluation, one in ideological and political theory courses, and one in instructional research and development were chosen.

b) All experts have a doctoral degree and at least five years of relevant teaching and research experience in their respective fields.

2.2 In this study, a pilot group was formed, consisting of 20 third-year students from Guangxi University of Science and Technology. This group was similar to the sample group but not the original sample group. The purpose of selecting this group is to assess the effectiveness of the instructional model. Following the pilot study, modifications were made to enhance the comprehensiveness and suitability of the model.

3. Scope of variables

The instructional model based on the case method to enhance students' critical thinking considered the following variables:

3.1 Appropriateness

3.2 Effectiveness

Stage 3: Implementing and studying the results of students' critical thinking after learning with the instructional model based on the Case Method to enhance the university students' critical thinking.

For the researcher to implement and study the results of students' critical thinking after learning with the instructional model based on the Case Method, the following scope was considered:

1. Content scope

The content of this stage includes democratic political principles development, cultural, and economic development, China's strategic security and global diplomacy, and people's livelihood Issues. This content was focused on enabling students to step through the components of critical thinking. The instructional model was implemented over 8 weeks, with each week including two lectures (1.5 hours each, totaling 3 hours per week).

2. Data source scope

The study included third-year students from Guangxi University of Science and Technology. Using clustered random sampling, 51 third-year students enrolled in the Ideological and Political Theory course were selected from a total of 10 classes.

3. Scope variable

At this stage, two variables were taken into consideration:

3.1 Independent variable: learning process with the instructional model based on the case method.

3.2 Dependent variables: critical thinking.

Stage 4: Evaluating students' satisfaction towards learning and improving the critical thinking of university students by case method.

In exploring students' satisfaction with learning with an instructional model based on the Case Method, the researcher used the following scope:

1. Data source scope

Data were obtained from a sample group comprised of 51 third-year students who participated in the implementation of the instructional model in the Ideological and Political Theory course.

2. Scope of variables

Students' satisfaction with learning through an instructional model based on the case method to enhance their critical thinking.

1.6 Definition of Terms

To clarify the terms used in this study, the following definitions are provided:

1. The Case Method: The Case Method is an instructional approach that fosters the development of critical thinking by presenting students with real-life scenarios or cases that require in-depth analysis, evaluation of multiple perspectives, and the formulation of well-reasoned solutions. A key component of this approach is active student participation, which encourages individuals to engage in discussions, share their viewpoints, and collaboratively work towards resolving the complexities presented in the case. Through the examination of these cases, students are encouraged to think critically, engage in thoughtful discussions, consider various options, weigh evidence, and make informed decisions. The Case Method encourages learners to go beyond rote memorization, enabling them to actively apply theoretical knowledge to complex, practical situations, thereby enhancing their ability to assess, synthesize, and solve intricate problems systematically and logically.

2. Ideological and Political Theory course: Refers to the compulsory courses determined in the document " Opinions on Further Strengthening and Improving the Ideological and Political Theory Courses in Colleges and Universities issued by the Chinese Propaganda Department and the Ministry of Education. This is a required course for all university students in China, explaining the national

development policies and paths, development goals and requirements, and the relationship between national conditions and the growth of young people.

3. Instructional model based on the Case Method: Refers to instructional model based on the Case Method. The instructional model rooted in the Case Method operates on the principle of experiential learning, aiming to develop students' critical thinking and practical application of theory. The students will be presented with real-world cases to analyze and solve, guided by targeted questions and discussions facilitated by the instructor. The learning process is evaluated through ongoing feedback during discussions and summative assessments like written reports or exams. This model integrates the key components of educational principles, learning objectives, content, learning process, and evaluation to create a comprehensive learning experience:

3.1 Content Explanation

Content explanation is a critical component of pre-class preparation, requiring students to thoroughly understand both the relevant theories and the provided case materials. This process goes beyond analyzing the case itself; it also involves grasping the broader industry context and other relevant background factors. By engaging in deep analysis, students can better identify key issues within complex situations, laying a solid foundation for meaningful discussions and further analysis.

3.2 Case Presentation

The presentation of a case is a crucial step in the instructional process, as the method of presentation directly impacts student engagement and understanding. Cases are typically presented in a structured narrative form, often supplemented by visual aids such as charts, videos, or slides. This approach helps vividly portray the background, conflicts, and challenges within the case, thereby enhancing student comprehension and interest, and stimulating their critical thinking.

3.3 Group Discussion

Group discussion is an essential stage where students deepen their understanding through social interaction and observational learning. During this phase, students share their perspectives and engage in discussions within their groups. The instructor acts as a facilitator, guiding the direction of the discussion, posing key questions, and ensuring that the conversation aligns with the learning objectives. This method allows students to learn from each other's viewpoints and enhance their critical thinking.

3.4 Synthesis and Reflection

Synthesis and reflection occur after the group discussion, where students integrate the content and engage in deep reflection. During this phase, students combine multiple perspectives and critically assess the knowledge they have acquired. This process is designed to help students internalize the information, promote critical thinking on complex issues, and better apply what they have learned in real-world contexts.

3.5 Assessment and Feedback

Assessment and feedback are vital tools for measuring student learning outcomes. Assessment methods may include observing student performance and providing constructive feedback from the instructor, etc. Feedback not only helps students understand their strengths and areas for enhancement but also guides them in making progress in enhancing their critical thinking.

4. Critical thinking: It is the ability to understand and solve a situation based on all available facts and information. Its core cognitive skills are interpretation, analysis, evaluation, inference, and explanation. Given the specific characteristics of Chinese university students and the ideological and political theory course, the study adapted the California Critical Thinking Skills Test (CCTST) as a research instrument to better align with the curriculum's characteristics.

4.1 Interpretation: To comprehend and express the meaning or significance of a wide variety of experiences, situations, data, events, judgments, conventions, beliefs, rules, procedures, or criteria.

4.2. Analysis: Analysis is a key component of critical thinking, as it enables individuals to break down complex information into smaller, more manageable parts. Through analysis, individuals can develop a deeper understanding of complex issues.

4.3. Evaluation: Evaluation is a critical thinking skill. The process of evaluation requires individuals to analyze and interpret information, identify biases and assumptions, and draw conclusions based on evidence and reasoning.

4.4 Inference: Inference is a critical thinking skill that involves drawing conclusions or making judgments based on evidence, reasoning, and experience. In critical thinking, inference requires individuals to interpret information, identify patterns, and make connections between different pieces of information to arrive at a conclusion or decision.

4.5. Explanation: Explanation is a critical thinking skill that involves clarifying or making clear a concept, idea, or argument. Critical thinking requires individuals to use evidence and reasoning to support their claims and to communicate that account clearly and coherently.

5. Quality of instructional model

5.1. Appropriateness: Appropriateness refers to the suitability or fitness of a particular approach or action for a specific purpose or situation. The accuracy and relevance of an instructional model's components determine whether it is appropriate to use the Case Method to enhance critical thinking. By using a 5-level Likert scale to analyze data from the evaluation of the instructional model and its manual, an instructional model is considered appropriate if the mean score is 3.50 or higher, based on recognized standards in educational research.

5.2. Effectiveness: Refers to the degree to which the Case Method instructional model can achieve its goal of enhancing students' critical thinking. An Effectiveness Index (E.I.) of 0.50 or above is deemed effective.

6. Satisfaction: refers to learners' positive perceptions or feelings towards a specific instructional model or learning experience, particularly when the outcomes meet or exceed expectations. When students express satisfaction with an instructional model, it indicates that the model has effectively achieved its objectives, including the integration and effectiveness of content, activities, methodologies, resources, and assessments designed to enhance critical thinking. A key part of this evaluation is students' self-assessment of their enhanced critical thinking abilities, with the model's success being evident when a majority agree that it has significantly contributed to this enhancement.

1.7 Benefits of Research

This study serves as a valuable introduction and offers guidelines for enhancing students' critical thinking through an instructional model based on the Case Method.

An innovative instructional model is developed with the primary aim of enhancing critical thinking among university students in China. Utilizing the Case Method as its foundation, this model serves multiple purposes. First and foremost, it significantly enhances critical thinking by equipping students with essential skills such as analysis, evaluation, and synthesis of information. These skills not only enrich their academic experience but also have long-term benefits for their professional endeavors.

Additionally, by fostering critical thinking and problem-solving abilities, this model enhances students' readiness for the workforce, equipping them with skills highly sought after by employers across a variety of industries. This, in turn, boosts their employability and readiness for the workforce. In addition to individual benefits,

the model also has broader implications for educational practices in China. It contributes to the advancement of teaching methodology, thereby elevating the overall quality of education, and benefiting future generations of students.

The case-based approach also enhances students' problem-solving abilities. Through engagement with real-world case studies, students learn to navigate complex problems, identify pertinent information, and formulate effective solutions. This prepares them for the challenges they will face in real-world scenarios.

Moreover, this research provides actionable guidelines for teaching reform, offering invaluable insights for course developers, educators, and policymakers. It aims to enhance the overall teaching effectiveness and can serve as a cornerstone for educational reform. Specifically, it promotes the reform and research of teaching methods in ideological and political theory courses within Chinese universities, thereby improving the relevance and effectiveness of education in these critical areas.

In summary, this instructional model based on the Case Method offers a comprehensive solution to several educational challenges, from enhancing critical thinking and problem-solving skills to advancing teaching methodologies and contributing to broader educational reforms in China.

CHAPTER II

LITERATURE REVIEW

The main purposes of this study were 1) To study how the Case Method can be implemented to enhance critical thinking. 2) To develop and assess the quality of an instructional model based on the Case Method to enhance the university students' critical thinking. 3) To implement and study the results of the university students' critical thinking after learning with the instructional model based on the Case Method to enhance the university students' critical thinking. 4) To explore students' satisfaction with learning with an instructional model based on the Case Method to enhance university students' critical thinking. This chapter provides the development of teaching models, theoretical basis, and previous research on the Case Method to enhance the level of critical thinking of Chinese university students, effective teaching strategies, related research, and conceptual framework.

1. Instructional Model Development

- 1.1 Definition of instructional model
- 1.2 Types of Instructional Models
- 1.3 Components of Instructional Model Design
- 1.4 Instructional Model Design
- 1.5 Evaluation of an Instructional Model

2. Case Method

- 2.1 Definition of Case Method
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- 2.3 Essential components of the case method
- 2.4 Advantages of the case method
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- 2.6 Foundations of Case Method: Theoretical Supports
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3. Critical thinking

3.1 Definition of Critical Thinking

3.2 Importance of critical thinking

3.3 Components of critical thinking

3.4 Theories of Critical Thinking Formation

3.5 Factors Influencing the Development of Critical Thinking

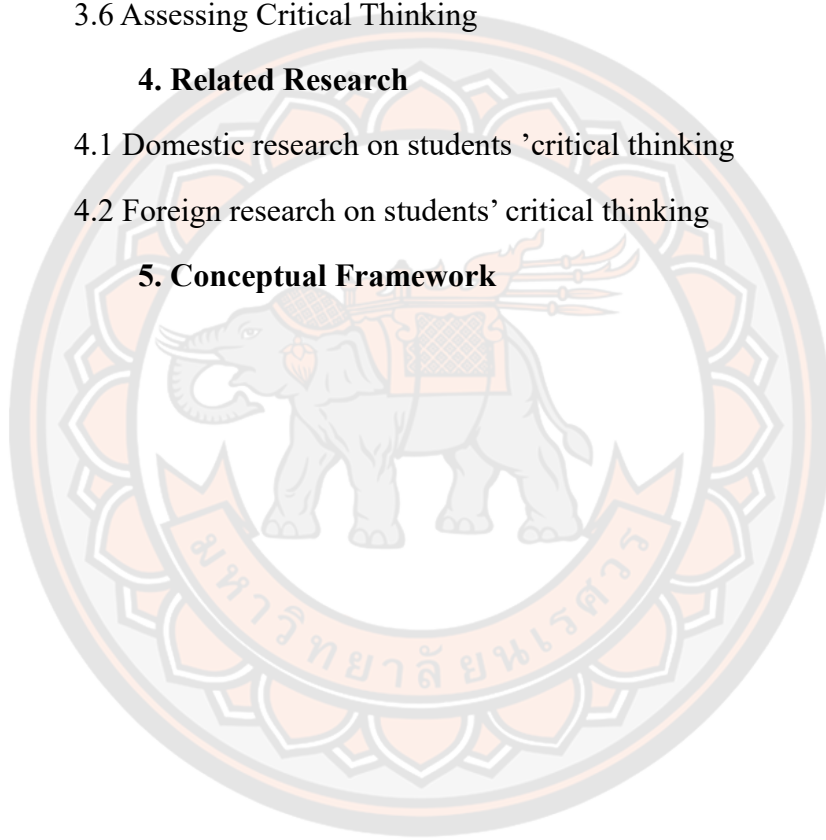
3.6 Assessing Critical Thinking

4. Related Research

4.1 Domestic research on students' critical thinking

4.2 Foreign research on students' critical thinking

5. Conceptual Framework



1. Instructional Model Development

Instructional models provide a consistent and coherent framework for designing and delivering instruction. This helps ensure that instruction is aligned with learning objectives and that content is presented in a logical and organized way (Walter Dick, 2005, p. 5). The literature review reveals that there are many different types of instructional models, each with its own set of principles and characteristics.

To enhance learning outcomes and the entire learning process, it is of great importance for Lecturers to seek new, better, and effective approaches to be used in the teaching-learning process. As a result, designing and developing effective instructional models should be seen as essential ways of enhancing students' learning as well as educational outcomes. Teachers are required to develop instructional models to facilitate learning experiences where students can demonstrate their newly acquired knowledge, skills, and attitudes (Mishra & Bartram, 2002, p. 71).

1.1 Definition of instructional model

According to Jonassen and Land (Land, 2012, pp. 1-24), an instructional model is a "framework for designing instruction that includes theory, principles, and strategies for promoting student learning." They state that instructional models are used to organize and present content, as well as to select appropriate instructional strategies.

Morrison, Ross, and Kemp (Morrison et al., 2013, p. 8) define an instructional model as " a systematic process for creating instruction based on scientific research that produces effective, efficient, and reliable instruction" They explain that instructional models provide a systematic approach to instructional design and help ensure that learning objectives are achieved.

Robert. Gagne (2004, p. 1) defines an instructional model as " a set of events embedded in purposeful activities that facilitate learning". They emphasize

the importance of using an instructional model to guide the design and development of instruction, as well as to evaluate its effectiveness.

Overall, these definitions emphasize the importance of instructional models as frameworks or guidelines for designing and delivering effective instruction. Based on the definition of instructional models, it can be concluded that instructional models are comprehensive frameworks that guide the design and delivery of instruction. They provide a systematic approach for organizing and presenting content and selecting instructional strategies. The components of instructional models include principles, strategies, and procedures for organizing, presenting, and evaluating instruction.

One widely recognized instructional model is the ADDIE model, which stands for Analysis, Design, Development, Implementation, and Evaluation. According to Gagne et al. (Robert M. Gagne, 2004, pp. 22-38), the ADDIE model is a systematic instructional design framework used to create educational and training programs. In essence, the ADDIE model serves as a flexible guide to instructional design, allowing educators and designers to develop effective, tailored educational experiences. It emphasizes iterative refinement and alignment with learner needs and organizational goals, thereby enhancing the quality and efficacy of the instructional process.

Merrill's First Principles of Instruction (Merrill, 2002, pp. 44-50) is another widely recognized instructional model. The model is rooted in the idea that effective learning is essentially task centered. It identifies five core principles to be considered for instructional design: 1) activating prior knowledge, 2) demonstrating skills, 3) providing application opportunities, 4) integrating new knowledge, and 5) centering instruction around tasks or problems. Merrill's First Principles of Instruction provide a comprehensive, research-backed framework for designing effective educational experiences. By adhering to these principles, educators and

instructional designers can significantly enhance the quality and effectiveness of instruction.

Keller's ARCS model is another commonly used instructional model. According to Keller (1987, pp. 3-9), Keller's ARCS Model is an instructional design framework developed by John Keller to enhance learner motivation. The acronym "ARCS" stands for Attention, Relevance, Confidence, and Satisfaction. According to Keller, these four components are crucial for designing educational experiences that motivate learners to engage with the material and achieve learning outcomes. The ARCS model emphasizes the importance of attention, relevance, confidence, and satisfaction in promoting learner motivation and engagement.

In summary, instructional models provide a systematic approach to instructional design and delivery. There are many different types of instructional models, each with its own set of principles and characteristics. The choice of an instructional model depends on factors such as the goals of instruction, the nature of the content to be taught, and the needs and interests of learners. Effective instructional models provide a structured approach to instruction that promotes student engagement, learning, and mastery of key concepts. In simple terms, an instructional model is a planned and organized way to design and deliver education. It serves as a structured approach for organizing and presenting content, selecting instructional methods, and ensuring alignment with learning objectives. Instructional models enable educators and designers to create tailored educational programs that are effective, efficient, and aligned with learner needs and organizational goals.

1.2 Types of Instructional Models

Educational frameworks, often referred to as teaching models, are structured approaches to delivering instruction that use a coordinated set of methods to achieve targeted learning objectives. These models serve as valuable instruments in devising differentiated teaching plans. Researchers have identified four families of

teaching models, each of which reflects a specific perspective on human nature and the learning process. These four families included the information-processing family, the social family, the personal family, and the behavioral family (Joyce et al., 2004, p. 25).

1.2.1 Information- Processing Family

Information processing frameworks are valuable for examining both individual identity and societal structures, thereby contributing to the attainment of educational goals on both personal and social levels. These models focus on amplifying an individual's natural inclination to comprehend their environment through the collection and structuring of information, identifying issues, and formulating solutions, as well as creating the necessary concepts and vocabulary to express these insights. There are eight types of information-processing models including the inductive thinking model, concept attainment model, the picture word, scientific inquiry, inquiry training, mnemonics, synoptics, and advance organizers. Every one of them provides the learners with different information and concepts such as emphasizing concept information and hypothesis testing, generating creative thinking, or enhancing general intellectual ability (Joyce et al., 2004, p. 26).

1.2.2 Social Models

The social models of teaching model aim to harness the collective momentum often referred to as synergy. These models are designed to capitalize on this idea by fostering communities of learners. Essentially, classroom management focuses on cultivating a sense of cooperation and collaboration among students. This involves establishing constructive interaction methods and setting guidelines that encourage active learning. Such models feature elements like collaborative learning partnerships, positive mutual dependence, organized research tasks, team-based inquiries, role-playing exercises, and legal reasoning discussions (Joyce et al., 2004, p. 29).

1.2.3 The Personal Family Model

The personal family models of learning begin from the perspective of the selfhood of the individual. The models aim to guide students toward a deeper understanding of themselves, encouraging them to take charge of their own learning. They also strive to inspire learners to transcend their existing limits, becoming more resilient, empathetic, and creative in their quest for a better quality of life. Moreover, the models place a significant emphasis on individual viewpoints and aim to foster a sense of independent productivity, allowing learners to become more self-aware and take greater control over their futures. Personal family models in this context encompass approaches like non-directive instruction and boosting self-esteem (Joyce et al., 2004, pp. 31-32).

1.2.4 The Behavioral Systems Family

The behavioral system family models are related to a self-correcting communication system that modifies behavior in response to information about how successful tasks are navigated. The frameworks focus on setting behavioral standards and provide precise guidelines for tasks and instructional methods that teachers can employ to convey progress to students. Additionally, these models are versatile, suitable for learners across different age groups, and have a wide variety of educational goals. Included in these models are techniques like mastery-based learning, direct teaching, simulations, social learning methods, and scheduled programming (Joyce et al., 2004, pp. 33-34).

Overall, these instructional models are effective in promoting student learning and achievement across a variety of contexts. However, it's important to note that the effectiveness of each model can vary depending on factors such as the content area, student population, and implementation fidelity. Each of these models offers unique benefits and challenges, and educators may consider blending different models to maximize student engagement and achievement.

Table 1 Summarization of Types of Instructional Models

Teaching Model Family	Main Focus	Key Methods and Techniques
Information-Processing Family	Individual and societal information processing	Inductive thinking, concept attainment, picture word, scientific inquiry, inquiry training, mnemonics, synoptics, advance organizers
Social Models	Cooperation and collective learning	Collaborative learning partnerships, positive mutual dependence, organized research tasks, team-based inquiries, role-playing, legal reasoning
Personal Family Model	Individual selfhood and autonomous learning	Non-directive instruction boosts self-esteem
Behavioral Family Systems	Behavior modification through self-correcting communication	Mastery-based learning, direct teaching, simulations, social learning methods, scheduled programming

1.3 Components of Instructional Model Design

“Planning for student learning should be a challenging, exciting, and gratifying activity”(Morrison et al., 2013, p. 6). To realize these objectives, a well-crafted instructional design is essential. The aim of any instructional design framework is to streamline learning, making it both effective and easier for the learner. The designer starts by identifying the educational challenge and subsequently ascertains the necessary skills and knowledge to tackle it. The focus of the

instructional design is on essential learning outcomes, while eliminating non-critical elements (Morrison et al., 2013, p. 30).

The instructional design is drawn from two kinds of theories including descriptive theory (descriptive phenomena as they are hypothesized to exist) and prescriptive theory (prescribing actions to take that will lead to certain results). These two theories comprised of some particular theoretical basis such as general system theory, communication theories of learning, and theories of instruction (Smith & J.Ragan, 1992).

According to Smith and J.Ragan (1992), an instructional design goes through three stages which are as follows:

1. Analysis: Learning environment, learner, and learning task
2. Strategy: Determining organizational, delivery, and management strategies.
3. Evaluation: Conducting Formative evaluation

Relatively, Morrison et al. (2011, p. 15) found that the components of the instructional model include learners, objectives, methods, and evaluation. These components are interrelated and could conceivably make up an entire instructional design plan.

3.1 Learner: Focusing on learners; speaking and reading level, general background knowledge, assumptions, or work experience. The collected information will mainly depend on the problem and audience.

3.2 Objectives: Specifying exactly what the learners must master

3.3 Methods: Involving designing creative and innovative ways of presenting the information that helps the learners to be able to integrate the new information with the ideas that they already understand.

3.4 Evaluation: Assessing the learner's mastery of the objectives

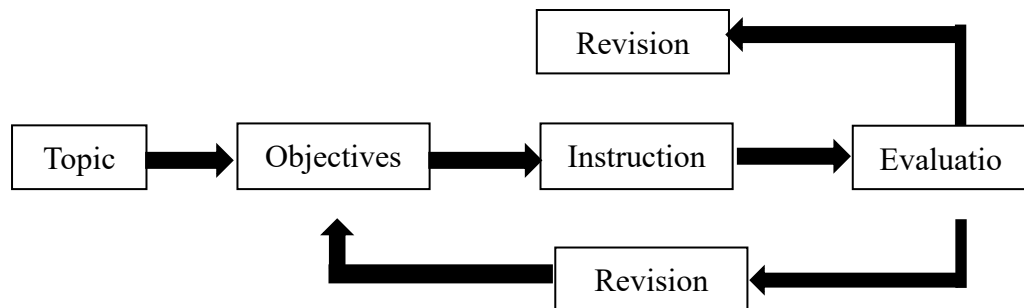


Figure 1 Instructional Design Model

Source: Morrison et al., 2011, p. 21, *Designing Effective Instruction* (6th ed.)

This instructional design is also defined as a process of planning performance objectives, selecting instructional strategies, choosing media, selecting or creating materials, and evaluating them as well as the performance of learners (Branch, 2009, p. 8). Regarding this explanation, the ADDIE approach founded by Branch (2009, p. 5) will be used to conduct an instructional design. ADDIE comprises of:

1. Analyze: Identifying the probable causes or problems for a performance gap
2. Design: Verifying desired performances and appropriate testing methods
3. Develop: Generating and validating the learning resources
4. Implement: Preparing the learning environment and engaging the students
5. Evaluate: Assessing the quality of instructional products and processes

ADDIE also adopts an input, processes, and outputs (IPO) paradigm as a way to complete its phases. The input phase reacts to the variables identified in the learning context by accepting data, information as well and knowledge. The process seeks ways to simulate creative and divergent thinking by utilizing procedures to interpret,

explain, configure, and display multiple approaches to events that are likely to occur in the learning area. Output delivers the results of the learning process by explicitly presenting ways of knowing that are translated into ways of doing (Branch, 2009, pp. 3-4).

A careful instructional design takes into consideration the age and interests of the learners, the knowledge that they bring with them to instruction, and the conditions under which instructions will occur (Walter Dick, 2005) have organized their work around five steps or stages for an instructional design including 1) setting objectives, 2) pre-assessment, 3) planning the instruction, 4) implementation and 5) testing and evaluation.

Tissana Kemmanee (As cited in Anchunda & Kaewurai, 2021) proposed the essential components of instructional models that have been selected from several well-detailed models stating that instructional models should have principles, learning objectives, learning steps, and evaluation.

Regarding the definition of instructional model design, it could be concluded that it focuses on enhancing learners' performance rather than the content to be covered. Equally, instructional design consists of some particular elements, including learners, objectives, methods, and evaluation.

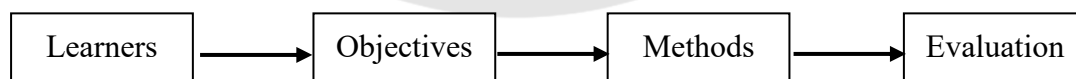


Figure 2 The Fundamental Components of Instructional Design

According to Buosonte (2019, pp. 30-32), in the realm of instructional model design, ensuring the coherence of various course components is of utmost importance. The various components that comprise an instructional model can be categorized into five main elements: 1) Underlying Philosophy or Principles, 2)

Objectives, 3) Subject content, 4) Course Management Guidelines and Teaching Activities, and 5) Methods of Measurement and Evaluation. To assess the coherence of these components, their interrelationships should be critically examined. Assessment of conformity can be approached in two distinct ways, focusing on how closely these five elements align with each other as

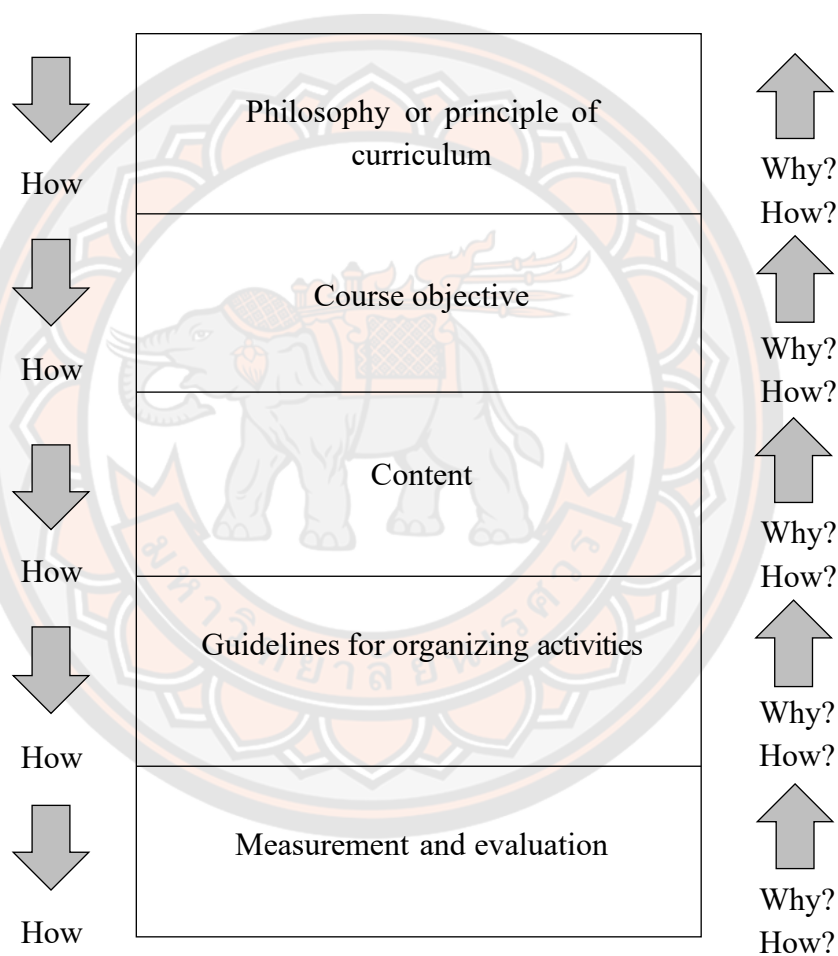


Figure 3 Using the Relational Reasoning Framework to Assess the Consistency of Each Component of the Curriculum

Source: Buosonte (2019, pp. 30-31) Research and educational innovation development

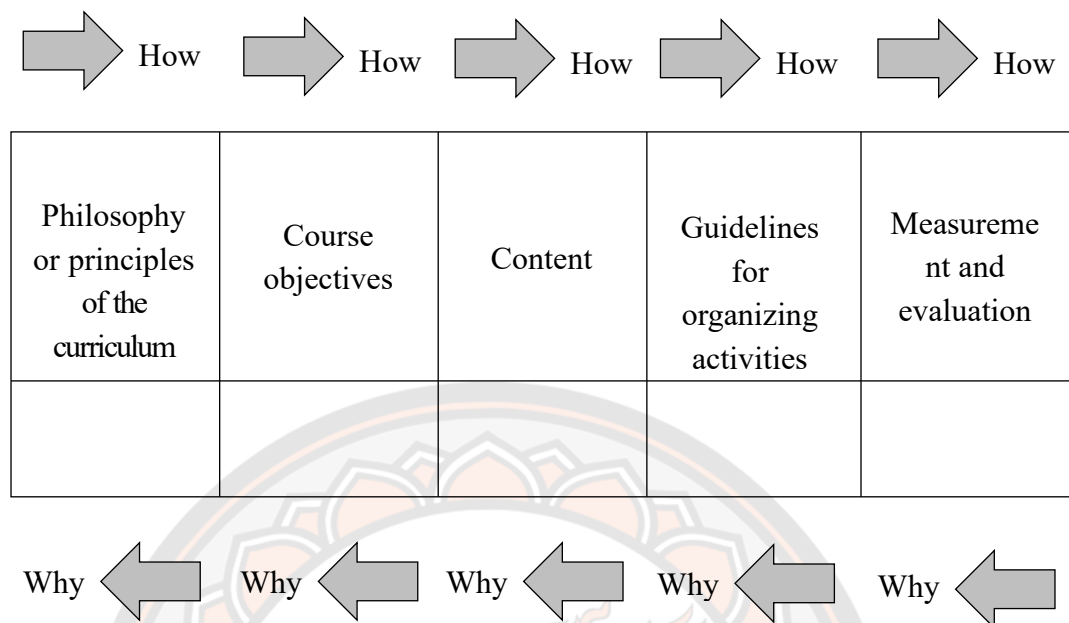


Figure 4 Using a Horizontal Reasoning Framework to Assess the Consistency of Each Component of the Curriculum

Source: Buosonte (2019, pp. 30-31) Research and educational innovation development

In summary, the synthesis of instructional model design literature underscores the importance of structured, systematic instructional designs in effective education. Morrison et al. (2013) underscore the need for an instructional design that excites and challenges students, focusing on learning outcomes that are essential and eliminating non-critical elements for a more streamlined educational experience. The model's design is influenced by both descriptive and prescriptive theoretical frameworks, as detailed by Smith & Ragan (1992), suggesting that a comprehensive system encompassing communication theories and instructional strategies is integral to the design process. This process unfolds through a three-stage structure: the analysis of the learning environment and learner needs, the development of strategic

instructional delivery, and the implementation of formative evaluations to assess the effectiveness of the instruction. Moreover, Morrison et al. (2011) and Walter Dick (2005) advocate for instructional designs that consider the learner's background, experience, and the conditions under which learning occurs, emphasizing that the learner's perspective is crucial to the design's success. Buosonte (2019) further adds that ensuring coherence among various instructional components is essential, recommending a relational reasoning framework to assess the alignment and consistency of the curriculum. This study posits that a well-constructed instructional model based on the case method is imperative for nurturing critical thinking in Ideological and Political Theory courses. It involves a harmonious blend of learner-focused strategies, clear objectives, innovative methods, and rigorous evaluation, all underpinned by sound educational theories and principles.

1.4. Instructional Design Models

Educational processes are dynamic, continually shaped by the ebb and flow of human thoughts and emotions. This fluidity distinguishes the act of teaching and learning, making it a captivating and ever-evolving journey (Joyce et al., 2004). To excel in this educational adventure, we should employ teaching models that are versatile and pedagogically sound.

Among various teaching frameworks, those presented by Joyce et al. (2004) stand out as being particularly effective and widely applied in educational contexts. These models, formed through years of classroom interactions, focus on creating purposeful environments conducive to learning. The defining features of these models include:

Well-grounded Theoretical Foundations: Each model is backed by a logical rationale that lays out the expected learning outcomes.

Extensive Historical Practice: The models are tried and tested over time, establishing their effectiveness.

Versatility: The models are flexible enough to adapt to diverse learning styles and curricular needs.

Research-backed Efficacy: Every model is supported by empirical studies that validate the underlying theories and effectiveness.

The real strength of these teaching models is their ability to transform students into more capable learners (Joyce et al., 2004) outline key components for their teaching models as follows:

1.4.1 Models of Teaching

Syntax: The initial step is to introduce students to a challenging scenario. It sets the stage for eliciting student reactions and dialogues that follow six specific stages, as identified by (Joyce et al., 2004).

1.4.1.1 First, students are exposed to perplexing situations. (In this study, the situation is a complex ideological and political theory course)

1.4.1.2 Students discuss their responses to the situation.

1.4.1.3 A research task is defined, and students prepare for it.

1.4.1.4 Independent and collective study commences.

1.4.1.5 Students evaluate their learning journey.

1.4.1.6 The cycle of activities is revisited for enhancements.

Social System: The learning environment is democratic and emerges, organically, with minimal teacher interventions. Both students and teachers participate as equals but with distinct roles, cultivating an atmosphere of rational dialogue and consensus.

Principle of Reaction: Teachers act as enablers, aiding students in multiple layers of inquiry. They serve as counselors, consultants, and constructively critical observers, facilitating the learning process without imposing rigid structures.

Support System: The educational setting should be adaptable enough to cater to a diverse set of learning requirements. For collaborative inquiries, an

elaborate and prompt support framework is essential to meet students' needs. Educators and learners should have the capability to gather the required resources promptly. Moreover, students should be motivated to explore and connect with experts outside the confines of their educational institution (Joyce et al., 2004).

1.4.2 Application

Group inquiry demands adaptability from both educators and students. For those unaccustomed to such participatory, autonomous learning, an adjustment period might be required. Seasoned students are likely to adapt more easily to this teaching approach, particularly as the issues tackled grow in complexity (Joyce et al., 2004).

1.4.3 Instructional and Nurturant Effects

This model of teaching blends the goal of academic inquiry, social integration, and social process learning. Also, this model can be used in all subject areas, with all age levels, when the teachers desire to emphasize the formulation and problem-solving aspects of knowledge rather than the intake of pre-organized, predetermined information. The model appears likely to nurture interpersonal warmth and trust, respect for negotiated rules and policies, independence and learning, and respect for the dignity of others (Joyce et al., 2004).

1.5 Evaluation of an Instructional Model

An instructional model is a framework that educators use to structure their lessons and teaching strategies. The evaluation of instructional models involves assessing the effectiveness of these frameworks in promoting student learning outcomes.

One common approach to evaluating instructional models is to conduct a meta-analysis of studies that have investigated the effectiveness of different models. For example, a meta-analysis by Hattie (2009) examined the impact of various instructional models on student achievement and found that models that emphasized

student-centered learning and feedback were more effective than teacher-centered models.

Other studies have used experimental or quasi-experimental designs to compare the effectiveness of different instructional models. In the meta-analysis, the authors compare the effectiveness of various instructional models, including direct instruction, problem-based learning, and inquiry-based learning. They find that the most effective instructional strategies share certain characteristics, such as providing feedback to learners and emphasizing student-teacher interactions (Hattie & Yates, 2014).

Overall, the literature on the evaluation of instructional models is broad and diverse, with studies exploring various aspects of these frameworks, including their effectiveness, implementation, and impact on student learning outcomes.

Evaluating learning processes is a pivotal aspect of instructional design. Such evaluations aim to judge the effectiveness or value of elements like instructional programs, lessons, or projects (Morrison et al., 2011, p. 272; Linn, & Gronlund, 1995., pp. 14-15).

1.5.1 Placement Evaluation

This form of assessment focuses on a student's initial skill set and knowledge base. It addresses questions such as:

Does the student have the prerequisite knowledge for the instruction?

How well has the student already mastered the intended learning outcomes?

What teaching approach would be most effective given the student's work habits and personality? Methods like prior academic records, pre-course tests, and observational techniques can be used to gather this data (Linn & Gronlund, 1995, p. 14).

1.5.2 Formative Evaluation

Also known as formative evaluations, these assessments aim to provide feedback on the instructional program's alignment with its objectives. Conducted during the instructional design phase, these assessments are crucial for timely adjustments. They help identify and remove any weaknesses before the program is fully implemented (Morrison et al., 2011, p. 272).

Key data for formative assessments can be collected through test results, learner feedback, peer reviews, and expert consultations (Morrison et al., 2011, p. 274). The questions to guide this type of evaluation may include:

1. Gives the objectives for the unit or lesson, is the level of learning acceptable? What witnesses are apparent?
2. Are learners able to use the knowledge or perform the skills at an acceptable level? Are any witnesses indicated?
3. How much time does the instruction and learning require? Is this acceptable?
4. Did the activity seem appropriate and manageable to the instructors and learners?
5. Were the materials convenient and easy to locate, use, and file?
6. What were the learner's reactions to the method of study, activities, materials, and evaluation methods?
7. Do the unit test and other outcome measures satisfactorily access the instructional objectives?
8. What revisions in the program seem necessary?
9. Is the instruction context appropriate?

1.5.3 Diagnostic Evaluation

This is a specialized form of evaluation geared towards identifying and addressing long-standing or recurring learning difficulties that aren't resolved through

formative evaluations. The goal is to root out the underlying causes and formulate remedial plans (Linn & Gronlund, 1995, p. 15).

1.5.4 Summative Evaluation

Summative Evaluation is geared towards assessing the extent to which predefined learning outcomes have been met by the time a course concludes. It aims to evaluate the overall efficacy after the course has been completed. Primary data sources for this type of evaluation typically include the results of unit-specific post-tests and the course's final exam (Morrison et al, 2011, pp. 275-276). In addition, summative evaluation also serves to gauge the precision and effectiveness of the learning process, the financial aspects of program creation and maintenance, participant reactions to the program, and its enduring impact (Morrison et al., 2011, p. 276).

Cited in Morrison et al. (2011, p. 276), the concept of confirmative evaluation was first proposed by Misanchuk (1978) as an extension to the summative evaluation framework. This form of evaluation employs an array of data collection tools, such as surveys, interviews, skills assessments, self-assessments, and cognitive tests. The assessment process for confirmative evaluation is ongoing. According to Morrison et al. (2011, p. 276), the following questions may guide the data collection process for confirmative evaluation:

1.5.4.1 Do learners continue to perform successfully over time?

1.5.4.2 Do materials still meet their original objectives?

1.5.4.3 How can learners' needs be best met over time?

1.5.4.4 If enhancements are needed in the training or materials, how can they be made most effective?

Summary of instructional model development

Instruction encompasses pedagogical strategies aimed at facilitating learners in achieving comprehensive understanding. The ultimate objective of

instruction is to streamline learning, making it not only more effective but also less challenging. Furthermore, instructional methods are designed to address what is essential for learners to grasp, while also identifying what can be excluded as non-essential information. Consequently, the act of instructing serves to meet well-defined objectives. The teaching model components as outlined by Joyce and Weil (1996, pp. 84-88) serve as the foundation for creating an instructional framework aimed at enhancing critical thinking skills among university students in China.

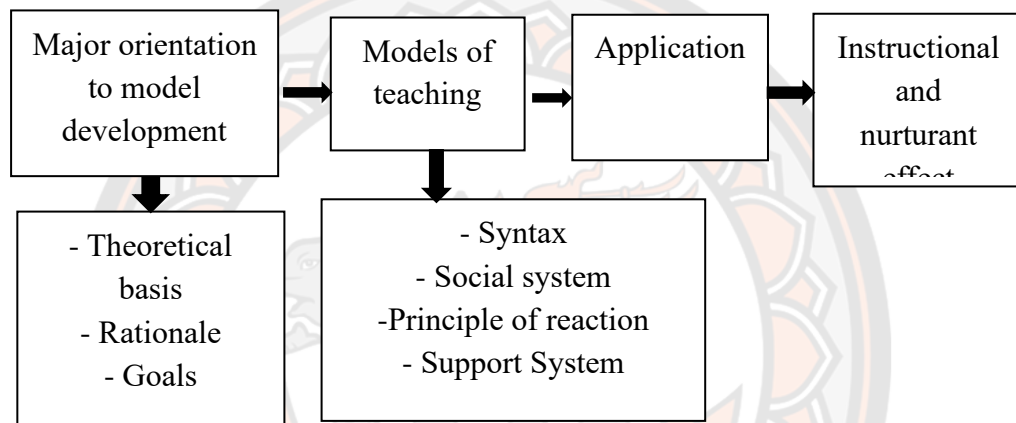


Figure 5 Summary of Instructional Model Development

Source: (Joyce & Weil, 1996, pp. 84-88)

2. Case Method

2.1 Definition of Case Method

The Case Method is a widely recognized pedagogical approach that has garnered attention in both educational and professional circles, particularly in disciplines like business, law, and social sciences. Scholars often trace the origins of the Case Method back to the Harvard Business School, where it gained prominence in the early 20th century. Notable figures such as Christopher Columbus Langdell and later educators like George W. Brown and Wallace B. Donham contributed to its evolution in legal and business education (Langdell, 1999, p. 3).

The Harvard Business School has been instrumental in popularizing the case teaching method. According to the content discussion, this definition can be summarized as: "The case teaching method is an experiential approach to learning that challenges students to analyze, discuss, and solve real-world problems through in-depth examination of cases. These cases provide a context for applying theoretical concepts to practical situations, fostering critical thinking and active engagement" (Barnes et al., 1994).

The case method encourages learners to think critically rather than seeking straightforward solutions. It stimulates professional reasoning and invites the application of theoretical frameworks to real-world issues. Unique attributes of the case method include its grounding in actual scenarios, provision of supplemental data and documents for examination, and posing of an ambiguous problem that invites multiple solutions. These cases are often extensive and intricate, focusing on well-articulated problems. Students are encouraged to leverage both their prior knowledge and new insights to address these issues (DeYoung, 2003).

Typically employed in group settings for brainstorming, the case method can also be adapted for individual learners. The variety of cases ranges from simple situations to complex, real-world scenarios, sometimes involving role-playing elements (Popil, 2011). This teaching approach not only engages students but also allows them to connect theoretical knowledge with practical applications, sharpen their decision-making abilities, consider various viewpoints, engage in data interpretation, and integrate the subject matter of the course (H.Grupe & Jay, 2000).

Working on case scenarios offers multiple avenues for growth, including enhancing understanding, acquiring new knowledge, honing listening and collaborative abilities, fostering a strong relationship between educators and students, and sharpening focus on concepts and assumptions. Additionally, the process nurtures scrutiny of ideas and fuels brainstorming (H.Grupe & Jay, 2000). This pedagogical

approach also augments the interaction between students and teachers, thereby fostering the development of critical thought and encouraging active problem-solving. It opens up the floor for exploring various viewpoints.

Within the framework of learner-centered education, Case-Based Learning (CBL) stands out as a highly effective teaching approach. It offers a variety of advantages, as evidenced by its ability to help students extend their existing knowledge base, synthesize new insights, and apply this integrated understanding to future scenarios. The use of case studies in this context also encourages a sense of responsibility and teamwork among adult learners, inspiring them to think critically and delve deeply into rational solutions, as opposed to passively absorbing information (Bastable, 2021).

From the above views, the case method is an instructional approach that fosters the development of critical thinking by presenting students with real-life scenarios or cases that require in-depth analysis, evaluation of multiple perspectives, and the formulation of well-reasoned solutions. Through the examination of these cases, students are prompted to think critically, engage in thoughtful discussions, consider various options, weigh evidence, and make informed decisions. The case method encourages learners to go beyond rote memorization, enabling them to actively apply theoretical knowledge to complex, practical situations, thereby enhancing their ability to assess, synthesize, and solve intricate problems systematically and logically.

2.2 Characteristics of the Case Method

The case method of teaching presents a unique approach to learning that emphasizes the practical application of theoretical knowledge in a real-world context. Case studies, often based on actual events, are typically complex and multifaceted. They are supplemented with supporting information and documents for in-depth analysis and feature open-ended questions or problems that invite a variety of

potential solutions (Sudzina, 1997). This approach provides students with the opportunity to delve into the issues at hand actively and collaboratively. Usually presented to groups, these case studies encourage team-based problem-solving, allowing for diverse perspectives and creative solutions to the questions posed.

The effectiveness of case studies, as McNair (1957) suggests, reaches its zenith when the case feels like "a real living thing." Such cases are imbued with elements of drama and suspense and focus on a central, compelling issue that demands attention (Herreid & Schiller, 2013). This real-world emphasis enhances the learning experience, making the academic journey more meaningful and relatable.

Another defining feature of this teaching strategy is its focus on active participation in learning. Students are not just passive recipients of knowledge; instead, they are urged to analyze, discuss, and reason through the cases with their classmates. This interactive pedagogical model enriches students' critical thinking abilities and hones their skills in problem-solving (Prince, 2006). Open discussions and debates are central to this approach. As highlighted by Louis B. Barnes in 1994, students are encouraged to voice their opinions, question existing assumptions, and collaboratively reach well-substantiated conclusions.

One of the most intriguing aspects of the case method is its tolerance for complexity and ambiguity. Cases often present scenarios where there is no single correct answer, encouraging students to navigate through uncertainties (Mintzberg, 1973). This characteristic prepares students for real-world complexities, making them more adaptable and flexible in their thinking.

The case method also places a premium on skill development, especially in problem-solving and critical thinking. As Bain (2012) points out, the method enhances problem-solving capabilities by requiring students to identify key issues, analyze root causes, and propose actionable solutions. Meanwhile, the method also

serves as a vehicle for cultivating critical thinking, challenging students to scrutinize evidence, question assumptions, and make reasoned judgments (Dowd, 1999).

In summary, the case method of teaching is a comprehensive approach designed to engage students actively, promote critical thinking, and prepare them for the uncertainties and complexities of the real world. Through this method, students are equipped with the skills necessary to apply theoretical concepts to practical, real-world problems, making them more adaptable and resourceful in their future endeavors.

2.3 Essential components of the Case Method

The case method of teaching stands as a multifaceted approach that infuses the educational experience with a blend of real-world context and complexity. Originating from either real or fictional scenarios, the cases used in this method are designed to emulate the intricacies and ambiguities found in real-world issues (Herreid & Schiller, 2013; Mintzberg, 1973). This careful construction pushes students beyond the boundaries of rote learning and generic textbook solutions, compelling them to apply theoretical knowledge to practical, complex problems (Sudzina, 1997).

A hallmark of the case method is its dedication to active learning. Students are expected to immerse themselves in the cases, dissect them, and work collaboratively to reach viable solutions (Prince, 2006). This engagement aligns well with scholarly findings that endorse active learning as an avenue for critical thinking development (Elder, 2019). Another central feature of the case method is the open discussion and debate that it encourages. This structure facilitates the examination of different viewpoints, fostering an environment where students can challenge assumptions and engage in higher-order thinking (Louis B. Barnes, 1994; Garside, 1996).

Problem-solving and decision-making are also cornerstones of this teaching approach. By emphasizing the identification of issues, root cause analysis, and the development of actionable solutions, the case method aligns closely with the scientific method. Research supports this focus as a potent catalyst for enhancing critical thinking (Bain, 2012; Paul & Elder, 2006). Alongside this, the case method nurtures analytical and logical reasoning. Students are taught to scrutinize evidence, assess data quality, and draw coherent connections between disparate information (Elder, 2019; Dowd, 1999).

Further enriching the educational experience is the interdisciplinary perspective that the case method brings to the table. It encourages the integration of knowledge from various academic domains, allowing students to tackle complex problems from multiple angles (Dori et al., 2003). The collaborative nature of the method, particularly when group work is involved, provides a platform for evaluating differing perspectives critically, thereby enriching the collective analysis and resultant decisions (Gokhale, 1995).

Lastly, the case method incorporates a self-reflective phase, enabling students to assess the validity of their judgments. This reflective component serves as a critical stage for developing metacognitive skills, which are pivotal for cultivating a mindset geared toward critical thinking (Schön, 1987).

In summary, the case method is an exceptionally effective educational strategy for cultivating critical thinking among university students. The key elements of this method include real-world complexity, active learning, structured discourse, problem-solving, an interdisciplinary approach, and self-reflection. All of these elements are supported by empirical research, confirming their effectiveness in skill development. Therefore, when the case method is carefully designed and executed, it provides a strong foundation for equipping students with the critical thinking that are essential for their academic and professional success.

2.4 Advantages of the Case Method

The case method is a pedagogical approach that offers a rich, multifaceted learning experience, integrating a variety of educational objectives into a cohesive framework. One of its foundational strengths is its focus on real-world application, allowing students to bridge the gap between theoretical knowledge and practical implementation (Christensen et al., 1991). For instance, the complexity and often ambiguous nature of real-world scenarios presented in case studies inherently demand critical thinking skills, such as analysis, evaluation, and synthesis (Barnes et al., 1994).

Moreover, the case method is designed to simulate the complexities and ambiguities of professional life, thereby fostering decision-making skills. Students are often required to make judgments based on incomplete or conflicting information, which mirrors the challenges they will face in their future careers (Herreid, 1997). This focus on decision-making is not just an academic exercise but a preparation for real-world professional challenges.

Additionally, the case method's interactive nature serves multiple educational objectives. On one hand, it fosters essential interpersonal skills, such as effective communication, negotiation, and consensus-building. These skills are developed through group discussions and collaborative problem-solving exercises that are integral to the case method (Sweet & Michaelsen, 2012). On the other hand, the method encourages self-directed learning by giving students the autonomy to explore cases independently before discussing them in a group setting. This fosters a sense of responsibility and self-reliance, which are crucial skills for lifelong learning (Knowles, 1975).

The case method also extends its educational impact beyond academic and professional skills to include ethical and social awareness. Many case studies are

designed to include ethical dilemmas or social issues, thereby encouraging students to consider the broader implications of their decisions (Weber, 1990).

Furthermore, the case method excels in providing a rich context for learning, making abstract concepts more concrete, relatable, and memorable. This contextual approach enhances both understanding and retention, making the learning experience more impactful (Ellet, 2007). The method's adaptability across different subjects, educational levels, and learning environments adds another layer of versatility, making it a flexible and effective educational tool (E. & Jr., 1998).

In summary, the case method is a comprehensive educational approach that integrates real-world application, critical thinking, decision-making, interpersonal skills, self-directed learning, ethical awareness, and adaptability into a single, cohesive learning experience. Each of these elements, supported by academic literature, contributes to a more engaging, practical, and effective learning experience, equipping students with a diverse set of skills they will need in their future careers.

2.5 Case Method Structures

The case method of teaching is a sophisticated, multi-step process designed to maximize student engagement and critical thinking. It begins even before the students set foot in the classroom, with pre-class preparation that usually involves reading assignments. Students are often tasked with going through the case study and related theories or frameworks before the class session (Ellet, 2007). To further prime them for the discussion, some educators also require an initial analysis of the case to be submitted beforehand. This early engagement compels students to wrestle with the case's intricacies on their own, kickstarting the critical thinking process (Herreid & Schiller, 2013).

According to Christensen et al. (1991), Once in the classroom, the initiation of the session is typically marked by the presentation of the case. This presentation can come in a variety of forms such as a detailed narrative, a video, or

role-playing exercises, all aimed at offering a thorough understanding of the problem statement of the case. This is followed by structured discussions, often led by the instructor in a Socratic manner. In these dialogues, students are urged to voice their viewpoints, question each other's opinions, and navigate the case's complexities collectively (Barnes, Christensen, & Hansen, 1994). At times, the classroom is subdivided into smaller groups for a more focused dissection of specific case aspects, promoting collaboration and multi-angle analysis (Gokhale, 1995).

To catalyze deeper analysis, instructors often pepper the discussion with open-ended questions that go beyond mere recall or summarization, nudging students to engage in higher-order thinking like evaluation and synthesis (Elder, 2019). Peer review is another pedagogical strategy employed, wherein students critique each other's case solutions, thereby fostering a sense of reflexivity and pushing them to reconsider their reasoning against alternate viewpoints (Topping, 1998).

Post-class activities add another layer to the learning experience. Reflection and self-assessment are encouraged to help students evaluate their performance and identify areas for improvement (Schön, 1987). To synthesize their learning, students may be tasked with written assignments requiring them to consolidate their ideas and critically analyze the case (Merseth & K., 1991). This process often culminates in instructors providing feedback, which may lead to a follow-up discussion designed to refine students' thought processes further (Angelo & Cross, 1993).

By incorporating a combination of various structural elements such as pre-class preparation, in-class activities, and post-class exercises, the case method establishes a vibrant and dynamic learning environment. This environment has been proven to enhance critical thinking, collaboration, and a deep understanding of the subject matter being discussed.

2.6 Foundations of Case Method: Theoretical Supports

Cognitive Psychology:

Cognitive psychology provides insights into how individuals process information, make decisions, and solve problems. Cognitive load theory suggests that learners have limited working memory capacity, urging educators to present information in manageable chunks. The case method's structure of presenting scenarios, analyzing issues, and proposing solutions align with strategies that reduce cognitive load, enhancing learning outcomes (Sweller, 1994).

From the perspective of a cognitive psychologist, Halpern (1997, p. 4) emphasizes that critical thinking is the "use of those cognitive skills or strategies that increase the probability of a desirable outcome." It is used to describe deliberate, logical, and goal-oriented thinking. According to Halpern (1997, p. 4), "Critical thinking is purposeful, reasoned and goal directed." Halpern (1997) suggested a model consisting of four components to guide teaching and learning for critical thinking: 1). a dispositional component to prepare learners for effortful cognitive work; 2). instruction in critical thinking skills; 3). training in the structural aspects of problems and arguments to promote trans-contextual transfers of critical thinking skills; and 4). a metacognitive component that includes checking for accuracy and monitoring progress towards the goal. Previous models indicated that teachers from any context could modulate their context on these models to enhance students' critical thinking (Alsaleh, 2020).

Problem-Based Learning (PBL):

The case method shares similarities with problem-based learning, a pedagogical approach focused on students collaboratively solving complex problems. PBL emphasizes inquiry, self-directed learning, and the application of knowledge to real-world scenarios. The theoretical foundations of PBL support the case method's

integration of cases that mirror authentic challenges, encouraging critical thinking and problem-solving (Rahman et al., 2021).

Social Constructivism:

Social constructivism highlights the role of social interactions in shaping learning experiences. The case method's emphasis on group discussions, debates, and collaborative analysis aligns with the principles of social constructivism. Engaging with cases in a group setting encourages the exchange of diverse perspectives, the negotiation of meanings, and the co-construction of knowledge (Vygotsky, 1978).

Situated Learning:

Situated learning theory proposes that learning is best achieved in contexts that resemble real-world situations. Cases, that simulate authentic scenarios, provide a platform for situated learning. Through the case method, students immerse themselves in contextually rich scenarios, allowing them to practice problem-solving and decision-making skills in environments akin to their future professional roles (Lave, 1991).

Constructivist Learning Theory:

Scholars often discuss how the case method aligns with constructivist learning theories. Constructivism emphasizes the active role of learners in constructing their understanding of knowledge. The case method's focus on active engagement, problem-solving, and application of concepts resonates with this theory (Jonassen, 1991).

Experiential Learning:

The literature frequently highlights how the case method embodies experiential learning principles. Experiential learning emphasizes learning through direct experiences. The case method's immersion in real-world situations facilitates hands-on learning and reflection (Kolb, 1984).

In summary, the case method is a well-supported pedagogical approach for enhancing critical thinking among university students. The case method of teaching serves as a multi-faceted approach designed to enhance critical thinking and problem-solving skills in university students. Drawing on a wealth of theoretical foundations such as Cognitive Psychology, Problem-Based Learning (PBL), Social Constructivism, Situated Learning, Constructivist Learning Theory, and Experiential Learning, the case method integrates principles from these educational paradigms to create an effective pedagogical strategy. The case method is a robust pedagogical approach that intersects with several learning theories, all of which support its efficacy in cultivating critical thinking in university students. Each theoretical framework provides unique insights into different facets of the learning process, making the case method a comprehensive tool for fostering critical reasoning and problem-solving abilities.

The table below should provide a structured overview of the different theories and how they support the case method:

Table 2 Summarization of Foundations of Case Method: Theoretical Supports

Theoretical Foundation	Key Principles or Concepts	How It Supports the Case Method	Supporting Scholars/References
Cognitive Psychology	Cognitive load, information processing, decision making	Focuses on presenting information in manageable chunks, aligning with strategies that reduce cognitive load.	Sweller (1994), Halpern (1997)
Problem-Based Learning (PBL)	Inquiry, self-directed learning, real-world application	Encourages critical thinking and problem-solving through real-world cases	Rahman et al. (2021)

Theoretical Foundation	Key Principles or Concepts	How It Supports the Case Method	Supporting Scholars/References
Social Constructivism	Social interactions, collaborative learning	Encourages group discussions and collaborative analysis, aligning with the principles of social constructivism.	Vygotsky (1978)
Situated Learning	Contextual learning, real-world situations	Cases simulate authentic scenarios, providing a platform for contextual learning and skill application.	Lave (1991)
Constructivist Learning Theory	Active engagement, knowledge construction	Emphasizes the active role of learners in constructing their understanding, resonating with the case method's focus on problem-solving.	Jonassen (1991)
Experiential Learning	Hands-on experiences, reflection	Emphasizes learning through direct experience and reflection, aligning well with the case method's focus on real-world situations.	Kolb (2014)

2.7 Learning Process Based on the Case Method

The case method has emerged as a robust pedagogical tool designed to foster critical thinking, problem-solving, and decision-making skills in students. This teaching approach is a multi-faceted process that involves various stages, each requiring specific roles and responsibilities from both instructors and students. This review aims to provide a detailed understanding of the case method by focusing on three main phases: before class, during class, and after class. Harling and Akridge (1998) summarized the tasks of teachers and students in this process as follows:

Table 3 Work Involved in a Standard Case Study Class

Period	Instructor Tasks	Student Tasks
	1. Assigns materials for student preparation	1. Receives assignment
Before Class	2. Prepares for class	2. Reads and prepares individually for class
	3. Consults with colleagues about teaching case when possible	3. Participates in small group discussion of case when possible
During Class	4. Sets class up to handle assignment	4. Raises questions regarding assignment
	5. Leads case discussion	5. Participates in case discussion
After Class	6. Evaluates participation of students and records impressions	6. Reviews class results in light of preparation and notes major concepts learned
	7. Evaluates materials in light of original teaching objective and updates personal teaching notes	

Source: Kenneth F. Harling Jay Akridge, p. 66, Using the Case Method of Teaching

Based on this work involved in a standard case study class, the literature review of the Learning process of the case method is as follows:

Before Class: Preparation and Planning

1. Transition to Facilitator Role: According to Guess (2014), the instructor's role changes from being the focal point to becoming a facilitator. In this role, the instructor poses questions and elicits individual observations and analyses from students. The instructor brings in each student at appropriate times, asking key questions and knowing the learning outcomes they wish to achieve. The classroom

becomes a learner-centered environment where students are responsible for their learning.

2. Pre-Class Preparation for Students and Instructors: Hammond (2002) outlines that the first step is preparation, where students segregate relevant and irrelevant information, identify issues, and devise strategies. Ellet (2007) adds that well-prepared students enrich the learning experience by contributing meaningfully to class discussions. Lynn (1998) also emphasize the importance of preparation for meaningful class participation. Instructors should prepare by reading, analyzing, and re-reading the case (Charan, 1976; Cossom, 1991).

3. Course Design and Class Preparation: Charan (1976) suggests that instructors should focus on three organizational steps: course design, class preparation, and the method of conducting class discussions. The course design should involve decisions regarding the selection and sequencing of materials, the speed at which they are to be covered, and the nature of the assignments. Golich (2000) further suggests that instructors should match case facts to course learning objectives, map a discussion path, and think about student participation.

During Class: Engagement and Facilitation

1. Case Presentation: Herreid (2007), Maufefette-Leenders et al. (1999), and Lynn (1998) suggest that storytelling and visual aids can significantly enhance student engagement. A compelling presentation captures students' attention and makes the learning experience more interactive.

2. Conducting Group Discussions: (Puri, 2020) states that discussions should be structured, objective, and thorough. (Lynn, 1998) provide detailed step-by-step instructions on organizing these discussions. Instructors should moderate the discussion, asking challenging questions and directing the class toward relevant conclusions. Golich (2000) recommends discussing a case before explaining the

relevant theory, as this can demonstrate the relevance of the theory and motivate students.

3. Instructor's Facilitation Techniques: Harling and Akridge (1998) provide guidelines for instructors on how to conduct the class. They emphasize leading case discussions and recording students' participation. Lynn (1998) suggests that the instructor should guide the conversation, ask probing questions, and ensure that learning objectives are met. Kim and Han (2016) further emphasize that a well-prepared student and instructor can lead to a more focused and enriching discussion.

After Class: Reflection and Assessment

1. Synthesis and Reflection: After the discussion, students enter the synthesis and reflection stage, where they consolidate their learning. This stage is supported by Christensen et al. (1991), Schön (1987), Ellet (2007), Kim and Han (2016), and Herreid (2005), who all discuss the importance of reflection in learning. This is the stage where students integrate multiple perspectives and engage in reflective practice, enabling them to apply their learning in different contexts.

2. Post-Class Activities: Charan (1976) recommends that instructors should review the discussion while the memory is still fresh. Golich (2000) adds that debriefing a case involves both faculty-led and student-defined summaries and conclusions. This is the stage where the feedback cycle is completed, and the effectiveness of the teaching objectives is evaluated.

3. Assessment and Feedback: The case method concludes with assessment and feedback, which are integral for measuring learning effectiveness. Lynn (1998) discuss grading rubrics, and Ellet (2007), Kim and Han (2016) add that effective preparation can lead to more constructive feedback and better assessment outcomes. Lynn (1998) also discuss the importance of constructive feedback in the learning process.

The case method, as discussed, offers a structured yet flexible framework for enhancing the learning experience. It requires meticulous planning and active participation from both instructors and students. The method is not just about solving a case but about understanding the nuances of problem-solving, decision-making, and critical thinking. It encourages a learner-centered environment, promotes active engagement, and provides opportunities for reflection and assessment. As educational settings continue to evolve, the case method remains a relevant and effective teaching strategy, adaptable to various subjects and learning outcomes.

After comparative analysis and screening, according to the combination of similar semantics and names in terms involved in literature, the learning process of the case method can be summarized as

Content Explanation
 Case Presentation
 Group Discussion
 Instructor-Led Discussion
 Synthesis and Reflection
 Assessment and Feedback

The five steps are briefly summarized in the table below:

Table 4 Learning Process Based on the Case Method

Process	Scholars Cited	Scholar's Main View
content Explanation	Hammond (2002), Ellet (2007), Lynn (1998), Charan (1976), Cossom (1991), Golich (2000)	Hammond (2002) emphasizes that preparation is the first and crucial step for meaningful class participation.
Case Presentation	Herreid (2007), Maufefette-Leenders et al. (1999), Lynn (1998)	Herreid (2007) argues that storytelling and visual aids significantly enhance student engagement.

Process	Scholars Cited	Scholar's Main View
Group Discussion	Puri (2020), Golich (2000), Rees & Porter (2002) Harling & Akridge (1998), Lynn (1998), Kim and Han (2016)	Puri (2020) states that discussions should be structured, objective, and thorough to facilitate real learning. Lynn (1998) suggests that the instructor should guide the conversation to ensure that learning objectives are met.
Synthesis and Reflection	Christensen et al. (1991), Schön (1987), Ellet (2007), Kim and Han (2016), Herreid (2005)	Schön (1987) discusses the importance of reflection for consolidating and internalizing learning.
Assessment and Feedback	Ellet (2007), Kim and Han (2016), Lynn (1998)	Ellet (2007) highlights the role of grading rubrics and constructive feedback in measuring learning effectiveness.

3. Critical thinking

3.1 Definition of Critical Thinking

Critical thinking has been variously defined with some focusing on its attributes or components while others focus on its applicability.

The critical thinking framework has been found the most useful and consists of four major elements: 1). A critical thinking attitude; 2). The ability to use specific critical thinking; 3). The ability to apply those skills in new contexts; 4). Habits of reflection upon one's thinking (Sweet & Michaelsen, 2012).

In 1990, the Delphi Report differentiated from the above definition as the expert consensus defined critical thinking specifically for educational assessment and instruction. Critical thinking was defined as a purposeful, self-regulatory judgment that results in interpretation, analysis, evaluation, and inference, as well as an explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based. The report added that

critical thinking is essential as a tool of inquiry. As such, critical thinking is a liberating force in education and a powerful resource in one's personal and civic life (Halpern, 2014).

Critical thinking is intentional thinking in which people routinely and systematically impose intellectual standards and criteria upon their thoughts Paul (1995). The traits of critical thinkers include being "outcome-driven, open to new ideas, flexible, willing to change, innovative, creative, analytical, communicators, assertive, persistent, caring, energetic, risk takers, knowledgeable, resourceful, observant, intuitive, and 'out of the box' thinkers" (Ignatavicius et al., 2001, p. 37). By stimulating cognitive functions, active learning strategies encourage critical thinking (Youngblood & M.Beitz, 2001). Paul (2006) and Elder (2006) assumed that critical thinking is the ability to read, write, speak, and listen effectively. It enables people to impart meaning to events and patterns of events, as well as to assess the reasoning of others. They state that if students want to be critical thinkers, they should be able to master systems, become more self-insightful, analyze, and assess ideas more effectively, and achieve more control over their learning, their values, and their lives.

There is no universal definition of critical thinking. Despite this, there are still common aspects that overlap. One could easily notice that although the definitions mentioned above are phrased in different wordings concepts common to current definitions of critical thinking include using reasoning/logic, judgment, metacognition, and reflection and questioning (Halpern, 2014).

From the various definitions given above, critical thinking could be summed as follows: It is the ability to understand and solve a situation based on all available facts and information. Its core cognitive skills are interpretation, analysis, evaluation, inference, and explanation.

3.2 Importance of Critical Thinking

Critical thinking enables individuals to evaluate information and arguments objectively, helping them make informed decisions based on evidence rather than personal bias or opinion (Halpern, 2014). Critical thinking is an essential skill for success in all areas of life. It involves the ability to analyze, evaluate, and synthesize information to make informed decisions and solve problems effectively. In today's complex and rapidly changing world, individuals are faced with a wide range of challenges and must be able to think creatively and critically to succeed. Developing critical thinking is therefore becoming increasingly important, both for personal and professional growth (Butterworth, 2005).

"Higher education must create conditions for knowledge to be acquired and disseminated in a spirit of intellectual independence and critical thinking that is mindful of social responsibility. It must educate students to become knowledgeable and responsible citizens who can think and analyze social problems in a critical spirit and seek, on their own initiative, to participate in solving them" (UNESCO., 1998). Therefore, the cultivation of critical thinking is a problem that must be paid attention to and actively solved in any subject education.

A report by the Association of American Colleges and Universities (AAC&U) found that employers seek candidates who possess strong critical thinking and problem-solving skills. In fact, 95% of employers surveyed stated that they value these skills more than a candidate's undergraduate major (Associates, 2013). A report by the Foundation for Critical Thinking found that critical thinking is essential for success in college and the workforce, as it enables individuals to make informed decisions, analyze complex information, and solve problems (Paul, 2006).

Furthermore, a survey of 300 US employers reported that 33% of new employees lacked the skills needed for entry-level positions, and 31% lacked the critical thinking necessary for employment (AAC&U, 2010). Eighty-one percent of

the employers surveyed requested more critical thinking instruction for their current and prospective workforce. This call for a change in the way students are educated has been heard around the world (Butler, 2012).

In summary, the research consistently shows that critical thinking is highly beneficial for college students, both academically and professionally. Developing these skills can lead to higher academic achievement, better employment prospects, and improved decision-making abilities. Only by enhancing students' critical thinking can they effectively and creatively employ knowledge to find solutions to real-world problems (Stephenson & Sadler-McKnight, 2016).

3.3 Components of Critical Thinking

Giancarlo and Facione (2001) stated that critical thinking has conceptual connections with reflective judgement, problem framing, higher-order thinking, logical thinking, decision making, problem solving, and use of the scientific method. Moreover, Swartz and Parks (1994) listed thinking capably and carefully about causal explanations, predictions, generalizations, reasoning, and the reliability of sources as major critical thinking (Alsaleh, 2020, p. 25).

Another taxonomy is Dick's taxonomy (1991). Dick reviewed research in the area of critical thinking for the last 40 years and indicated that critical thinking consisted of identifying and analyzing arguments, of considering external influences on arguing, of scientific analytic reasoning, and of logical reasoning. Dick (1991) suggested the following taxonomy for critical thinking:

1. Identify arguments: This includes themes, conclusion, reasons, and organization.
2. Analyses arguments: This includes assumptions, vagueness, and omissions.
3. Consider external influences: This includes value, authority, and emotional language.

4. Scientific analytic reasoning: This includes causality and statistical reasoning.

5. Reasoning and logic: this includes analogy, deduction, and induction.

In addition, Halpern (1997) proposed a taxonomy of critical thinking as a guide for instruction, which consists of the five main skills listed below:

(a) Verbal reasoning skills: This category includes those skills needed to comprehend and defend against the persuasive techniques that are embedded in everyday language.

(b) Argument analysis skills: An argument is a set of statements with at least one conclusion and one reason that supports the conclusion.

(c) Skills in thinking as hypothesis testing: The rationale for this category is that people function similarly to intuitive scientists who explain, predict, and control events.

(d) Likelihood and uncertainty: Because very few events in life can be known with certainty, the correct use of cumulative, exclusive, and contingent probabilities should play a critical role in almost every decision.

(e) Decision-making and problem-solving skills: In some sense, all critical thinking skills are used to make decisions and solve problems, but the ones that are included here involve generating and selecting alternatives and judging among them. Creative thinking is subsumed under this category because of its importance. in generating alternatives and restating problems and goals.

The consensus reached by the researchers and teachers, who participated in the American Philosophical Association's Delphi project on the definition of critical thinking, is that the characteristics of a critical thinker include traits such as being inquisitive, fair-minded, flexible, diligent, and focused on inquiry (Facione, 1990). In Facione's taxonomy (1990, p.12), critical thinking is composed of five main skills, each containing sub-skills, as indicated below:

1. Interpretation
 - Categorization
 - Decoding significance
 - Clarifying meaning
2. Analysis
 - Examining ideas
 - Identifying arguments
 - Analyzing arguments
3. Evaluation
 - Assessing claims
 - Assessing arguments
4. Inference
 - Querying evidence.
 - Conjecturing alternatives
 - Drawing conclusions
5. Explanation
 - Stating results
 - Justifying procedures
 - Presenting arguments

Facione (1990) asserts that critical thinking is focused self-judgment that results in interpretation, analysis, evaluation, and inference, as well as an explanation of the evidential, conceptual, methodological, or contextual thoughts upon which such judgment is based. Each question has only one correct answer, and the test-taker's score is usually the sum of all correct answers. The scores may be interpreted in relation to a normative sample, and they can be broken down to show proficiency in each of the component skills.

3.4 Theories of Critical Thinking Formation

Critical thinking is an essential skill that encompasses abilities like analyzing arguments, identifying biases, evaluating evidence, and making well-founded conclusions. Several theories attempt to explain how critical thinking is formed and developed.

Piaget's Cognitive Development Theory

According to Jean Piaget, cognitive development occurs through a series of stages, each more complex than the last (Piaget, 1952). Critical thinking emerges during the formal operational stage, roughly from age 12 and up. This is when children develop the ability to think logically about abstract concepts, plan for the future, and evaluate the quality of different kinds of information.

Bloom's Taxonomy

Developed by Benjamin Bloom and collaborators, this taxonomy classifies thinking skills into a hierarchy (Bloom et al., 1956). Critical thinking is situated toward the higher levels of this pyramid, involving skills like analysis, synthesis, and evaluation.

Vygotsky's Social Development Theory

Lev Vygotsky (1978) emphasized the role of social interaction in cognitive development. He argued that critical thinking is socially constructed and honed through interactions with more knowledgeable peers or adults. This implies that effective critical thinking instruction should involve collaborative learning and dialogical teaching methods.

Perry's Scheme of Intellectual Development

William Perry focuses on the cognitive development of college students and identifies nine positions of intellectual development. These positions range from dualism, where things are viewed in black-and-white, to commitment with relativism, where the learner can make reasoned judgments within a context. This provides a

framework to understand how critical thinking evolves throughout higher education (King, 1978).

Paul-Elder Model

Richard Paul and Linda Elder developed a model suggesting that critical thinking involves several interconnected elements such as purpose, question, information, interpretation, concept, assumptions, implications, and point of view (Paul & Elder, 2006). These elements serve as criteria for analyzing and assessing thought processes, thus fostering the development of critical thinking.

Metacognition Theory

Flavell (1979) argues that understanding one's cognitive processes is a vital step in developing critical thinking. By being aware of one's thinking process, one can better regulate and adapt, which is central to critical thinking.

Situated Cognition Theory

According to theorists like Brown, Collins, and Duguid, learning, including critical thinking, is not an isolated cognitive activity but is deeply interconnected with the environment and context in which it occurs (Brown et al., 1989). Thus, critical thinking is best developed through real-world tasks and problem-solving.

To sum up, each theory offers a unique perspective on how critical thinking is formed. Some emphasize cognitive stages, some focus on educational objectives, while others point to social and environmental factors. In reality, critical thinking is likely formed through a complex interplay of all these factors. Educators can use insights from these theories to design more effective critical thinking training programs.

Below is a table that summarizes the various theories related to the formation and development of critical thinking

Table 5 Theories of Critical Thinking Formation

Theory	Key Concepts	Implications for Critical Thinking Development	Reference(s)
Piaget's Cognitive Development Theory	Series of developmental stages, formal operational stage	Critical thinking emerges during adolescence when logical reasoning about abstract concepts develops.	Piaget (1952)
Bloom's Taxonomy	Hierarchy of thinking skills, higher-order thinking	Critical thinking is located at the higher levels of taxonomy, encompassing skills like analysis, synthesis, and evaluation.	Bloom et al. (1956)
Vygotsky's Social Development Theory	Social interaction, cognitive development	Critical thinking is socially constructed and can be improved through collaborative learning and dialogue.	Vygotsky (1978)
Perry's Scheme of Intellectual Development	Intellectual positions, ranging from dualism to commitment with relativism	Provides a framework for understanding the evolution of critical thinking in higher education.	King (1978)
Paul-Elder Model	Interconnected elements like purpose, question, information, etc.	Offers criteria for analyzing and assessing thought processes, aiding in the development of critical thinking skills.	Paul & Elder (2006)
Metacognition Theory	Self-awareness of cognitive processes	Encourages understanding and regulation of one's thinking, which is essential for critical thinking.	Flavell (1979)

Theory	Key Concepts	Implications for Critical Thinking Development	Reference(s)
Situated Cognition Theory	Learning as a contextual activity	Emphasizes the importance of environment and real-world tasks in developing critical thinking skills.	Brown et al. (1989)

3.5 Factors Influencing the Development of Critical Thinking

Understanding the multifaceted factors that contribute to the development of critical thinking is crucial for educators, learners, and policymakers. Here are some key factors influencing:

Educational Environment

The importance of the educational environment, including teaching methods, classroom setting, and curriculum, cannot be overstated. Tsui's research indicates that an educational setting that encourages active engagement, questioning, and open dialogue can significantly enhance critical thinking (Tsui, 2002).

Socio-Cultural Factors

The impact of sociocultural elements on cognitive development, including critical thinking, has been emphasized by Vygotsky (1978) in his Social Development Theory. Aspects like culture, language, and social norms significantly influence how individuals approach problems and make decisions.

Family Background

The family plays a crucial role in nurturing these skills from an early age. Parenting styles that encourage open dialogue and questioning are beneficial for fostering critical thinking (Paul, 1993).

Individual Cognitive Abilities

In terms of individual differences, cognitive abilities such as memory, attention, and problem-solving skills also have an impact on the development of critical thinking abilities (Halpern, 2003).

Motivation and Self-Efficacy

Bandura (1976) posited that self-efficacy and motivation are significant factors affecting one's engagement in activities that promote critical thinking. Individuals who are confident in their abilities are more likely to invest effort into developing these skills.

Prior Knowledge

Bransford et al. (2004) suggest that prior knowledge doesn't just serve as a base for new learning; it also impacts how individuals evaluate new information and solve problems.

Peer Interaction

Interactions with peers can also have a significant impact. Gokhale's study suggests that collaborative learning and peer teaching are effective in enhancing critical thinking (Gokhale, 1995).

Technology and Media

In the digital age, the role of technology and media has become increasingly important. Ku (2009) points out that the ability to critically evaluate information found online is now a key aspect of critical thinking.

The formation of critical thinking is influenced by a myriad of factors, including educational environments, socio-cultural conditions, family background, individual cognitive abilities, self-efficacy, prior knowledge, peer interaction, and the role of technology. By integrating these insights from various scholarly works, this article aims to provide a comprehensive and academically rigorous understanding of the factors that contribute to the formation of critical thinking.

Below is a table that synthesizes the multi-faceted determinants that influence the development of critical thinking. Each column delineates a specific variable, its key concepts, and the seminal research that provides empirical substantiation.

Table 6 Summarization of Factors that Influence Critical Thinking Formation

Factors Affecting Critical Thinking Development	Key Concepts	Supporting Research
Educational Environment	Active engagement, questioning, open dialogue	Tsui, 2002
Socio-Cultural Factors	Culture, language, social norms affecting cognition	Vygotsky, 1978
Family Background	Parenting styles, open dialogue, questioning	Paul, 1993
Individual Cognitive Abilities	Memory, attention, problem-solving skills	Halpern, 2003
Motivation and Self-Efficacy	Self-confidence, engagement, effort investment	Bandura, 1976
Prior Knowledge	Base for new learning, evaluation of new information	John D. Bransford, 2000
Peer Interaction	Collaborative learning, peer teaching	Gokhale, 1995
Technology and Media	Digital literacy, critical evaluation of online information	Ku, 2009

3.6 Assessing Critical Thinking

The evaluation methods of critical thinking are worthy of in-depth study. The effective assessment of students' critical thinking is a major issue for higher education. The issue here is whether teachers, during the process of a critical thinking assessment, can reliably assess the level of a student's critical thinking (Quitadamo &

Kurtz, 2007). Assessment remains a major concern in developing instructional activities to enhance students' critical thinking. Different approaches are used to assess critical thinking (Ennis 1993; Andrade 2000; Paul & Elder 2006), and it is important for teachers who seek to enhance these skills to determine at an earlier stage the type of approach they will use and the reason for doing so. As Al - Fadhli and Khalfan (2009) stated, the following three main approaches can be used to assess critical thinking, and teachers can use any of them based on their goals:

- 1) commercially available, general knowledge standardized tests.
- 2) researcher or teacher-designed assessments that attempt to capture aspects of critical thinking more directly related to the purposes of the research project or subject of instruction, such as rubrics.
- 3) teaching students to assess their thinking. This allows the teacher to build his/her assessments to fit within the course goals, students' needs, and the teacher's aims. The choice between these approaches will depend on the course's goal and aims, students' needs and abilities, and the ability and availability of the teacher.

3.6.1 CCTST

In the above assessments, Critical thinking standardized tests are one of the most popular tools used to assess critical thinking, and they have been examined and explained in several studies (Ennis 1993). For example, the CCTST (California Critical Thinking Skills Test) is a famous instrument in this field that measures cognitive and meta-cognitive skills associated with critical thinking. It is based on an agreed definition of critical thinking and has been evaluated for validity and reliability for measuring critical thinking, at the college level for four years (Facione 1990). The CCTST measures the cognitive skills indicated by a Delphi panel of experts on the component skills of critical thinking (analysis, inference, evaluation, induction, and deduction) (Quitadamo & Kurtz 2007).

Test Structure

The CCTST is generally a multiple-choice test that consists of a variety of questions aimed at assessing different facets of critical thinking. The questions are designed to be applicable to a wide range of subjects, making the test useful for students and professionals in various fields. The test usually takes around 45-60 minutes to complete.

Components Assessed

- 1. Interpretation:** Understanding the meaning of information, such as the main point of a text or the definition of a term.
- 2. Analysis:** Breaking down complex information into simpler parts to understand its structure or relationships.
- 3. Evaluation:** Assessing credibility and logical strength of statements or sources.
- 4. Inference:** Drawing logical conclusions based on the available information.
- 5. Explanation:** Articulating the reasoning behind a decision or conclusion.

Scoring

The CCTST is typically scored automatically if taken online, or it can be manually scored if taken on paper. Each question has only one correct answer, and the test-taker score is usually the sum of all correct answers. The scores may be interpreted as a normative sample, and they can be broken down to show proficiency in each of the component skills.

Validity and Reliability

The CCTST has undergone rigorous validity and reliability testing. According to Facione's work, the test has been evaluated for its ability to accurately measure critical thinking skills at the college level over a four-year period. The test's

construct validity has been established through its alignment with the consensus definition of critical thinking as identified by experts in the field.

3.6.2. WSU

Another well-known measurement is the WSU Guide to Rating Critical Thinking, which was developed by Washington State University (WSU). The earlier version of this instrument was first developed in 1997 and was used to evaluate students' critical thinking, based on their writing abilities. Later, this instrument was improved to be adapted by teachers to suit their instructional and evaluative methodologies and to be employed across the curriculum to evaluate students' critical thinking, and outcomes (Condon & Kelly-Riley, 2004).

The guide for assessing critical thinking was designed by Condon and Kelly-Riley (2004), and was derived from scholarly work, including that of Facione (1990) and Paul (1992), and local practices and expertise, to develop a process for improvement and a means for measuring students' critical thinking, skills throughout their college period. The guide can be adapted instructional and can be used as an evaluative tool. It includes seven key areas of critical thinking:

1. Identification of a problem or issue.
2. Establishment of a clear perspective on the issue
3. Recognition of alternative perspectives.
4. Location of the issue within an appropriate context(s).
5. Identification and evaluation of evidence.
6. Recognition of fundamental assumptions, implicit or stated by the representation of an issue.
7. Assessment of implications and potential conclusions (Condon & Kelly-Riley, 2004).

According to Condon and Kelly-Riley (2004), teachers are encouraged to use as many of the above seven points within their classrooms, their teaching styles,

the makeup of the students in their course, and so on. Moreover, teachers are encouraged to distribute these criteria to students before assignments so that students can develop a clear understanding of their expectations.

3.6.3 Cornell Critical Thinking Test

Level X and Cornell Critical Thinking Test, Level Z: Both tests were developed by Ennis and Weir (1985). The first test is aimed at Grades 4- 14 students. It consists of multiple-choice questions, and sections on induction, credibility, observation, deduction, and assumption identification. On the other hand, the Level Z test is aimed at college students and adults, but usable with advanced or gifted high school students. It consists of multiple-choice questions, sections on induction, credibility, prediction and experimental planning, fallacies, especially equivocation, deduction, definition, and assumption identification.

3.6.4 EWCTET

Ennis-Weir Critical Thinking Essay Test (EWCTET): This test was developed by Ennis and Weir (1985). It is a general test of critical thinking ability in the context of argumentation, and it is intended to be used for both formative and summative evaluations and as teaching material. The test incorporates getting one's point, seeing the reasons and assumptions, stating one's point, offering good reasons, seeing other possibilities (including other possible explanations), and responding to and avoiding equivocation, irrelevance, circularity, reversal of an if-then (or other conditional) relationship, overgeneralization, credibility problems, and the use of emotive language to persuade. In the test, the participants have to write a letter to an editor of a fictional newspaper for 40 minutes. In the letter, the writer offers a variety of arguments in support of it. There are eight paragraphs in total; each paragraph exemplifies at least one of the errors of reasoning.

The essay test provides criteria and scoring guidelines (Ennis & Weir, 1985). The students' responses are graded according to a score of - 1, 0,1,2, or 3 given for each of the first eight numbered paragraphs.

- 1 judges incorrectly (good or bad) C
- 1 shows bad judgment in justifying 0 makes no response
- 0 makes no response D
- +1 judges correctly (good or bad), but does not justify C
- +2 judges semi-adequately
- +3 justifies adequately.

For Paragraph Nine, the range is - 1 to +5.

3.6.5 HCTA

Halpern Critical Thinking Assessment (HCTA): It is a critical thinking test developed by Halpern (2016). According to the author, it is to be used in the assessment of critical thinking skills for respondents aged 15 years and older. The test has two different forms: S1: Standard version, which requires a constructed response and multiple-answer, and S2: Multiple-choice short version. The HCTA aims to measure various dimensions of critical thinking, including but not limited to Problem-solving, Decision-making, Logical reasoning, Evaluation of evidence

The HCTA is considered the first test that enables a content-representative assessment of recognition and recall aspects of critical thinking (Halpern, 2016).

3.6.6 WGCTA

The Watson-Glaser Critical Thinking Appraisal (WGCTA) was developed in 1980 by Watson and Glaser (1980). The test consists of 80 multiple-choice sections on induction, assumption identification, deduction judging, and argument evaluation. It could be completed in 50 minutes. Furthermore, this test has

internationally recognized reliability and validity ensuring that this tool is one of the most trusted instruments available in diversified settings.

The analysis and comparison table for each assessment test instrument is as follows:

Table 7 Comparison Table for Critical Thinking Assessment Methods

Assessment Method	Key Components Assessed	Insights from Literature
CCTST	Interpretation, Analysis, Evaluation, Inference, Explanation	Facione (1990), affirms its high reliability and validity for measuring critical thinking at the college level.
WSU Guide	Identification of problem, Perspective, Alternative perspectives, Context, Evidence, Assumptions, Implications	Condon & Kelly-Riley (2004), emphasize its adaptability and recommend its use across various disciplines and educational levels.
Cornell Tests	Induction, Credibility, Observation, Deduction, Assumption identification	Ennis and Weir (1985), designed these tests for specific age groups, but their adaptability to specific curricula is not well-documented.
EWCTET	Argumentation skills, including reasoning and identification of errors	Ennis and Weir (1985), suggest that this test is suitable for both formative and summative evaluations and focuses on argumentation skills.
HCTA	Problem-solving, Decision-making, Logical reasoning, Evaluation of evidence	Halpern (2016), notes that it's the first test to enable a content-representative assessment of recognition and recall aspects of critical thinking.

Assessment Method	Key Components Assessed	Insights from Literature
WGCTA	Induction, Assumption identification, Deduction, Argument evaluation	Watson and Glaser (1980), highlight its internationally recognized reliability and validity but note its general knowledge focus.

After the above summary and comparison, given the specific characteristics of Chinese university students and the curriculum, this study will adopt a researcher or teacher-designed assessment approach for evaluating critical thinking. This approach is in line with the framework proposed by Al-Fadhli and Khalfan (2009), which emphasizes assessments tailored to the objectives of the research project or instructional subject. Specifically, the study will adapt the California Critical Thinking Skills Test (CCTST) to better align with the curriculum's characteristics.

4. Related Research

4.1 Domestic Research on Students Thinking

4.1.1 Research on Critical Thinking Among Domestic

Students understanding the development of critical thinking among Chinese university students is a complex undertaking that engages with a range of factors including skill levels, teaching methodologies, cultural influences, and social pressures. One of the important dimensions that needs attention is the comparison with Western counterparts. A study conducted by Lee (2023) found that while Chinese students excel in memory-based tasks, they often lag in critical thinking compared to their American peers. This discrepancy has been partially attributed to China's exam-centric educational approach, which traditionally places less emphasis on critical reasoning skills (Lee, 2023). According to Zhang and Kim (2018), It has been argued that "learners from Asian cultures are less proficient in critical thinking

because they are socialized to be empathetic and to conform” (Atkinson, 1997). Carson (1992) emphasizes the role that “rote learning and memorization play in Chinese students’ learning strategies”. In addition, Shi (2006) describes “Asian students as reproductive, as opposed to analytical, learners”, and “Chinese learners as passive, unquestioning, and lacking the ability to think critically”. Their learning styles, similarly, have been characterized as “reproductive rather than analytical or speculative” (Shi, 2006).

The topic of critical thinking drew more attention from Chinese domestic researchers in the twenty-first century. Research continues to flourish since the announcement of the Outline of National Medium and Long-term Educational Reform and Development Plan 2010.

In China, some universities have initiated specialized courses aimed at fostering critical thinking among students. For example, Tsinghua University offers an elective course on "problem-solving strategies and skills," while Beijing University of Aeronautics and Astronautics has a "University Study Guide" focusing on this area. Peking University also provides a course named "Logic and Critical Thinking." These courses are specifically designed to improve the critical thinking capabilities of college students (Li, 2014). Additionally, in 2009, Huazhong University of Science and Technology incorporated critical thinking education into their "seed class" curriculum, which is an advanced class. The objective of this particular course on "critical thinking" was explicitly stated as the cultivation of critical thinking skills.

Besides offering general courses on the subject, researchers in China have also been keen on advancing students' critical thinking abilities through empirical studies within specific academic disciplines. Notably, the fields of nursing education and foreign language education have devoted significant attention to the incorporation of critical thinking in their curricula and classrooms. Despite these concerted efforts, the integration of critical thinking into other disciplines has been relatively sluggish.

Furthermore, the overall quality of instruction related to critical thinking in China has been inconsistent (Dong, 2015).

Just as Liu (2019) said, although many studies provided approaches to teaching critical thinking in higher education in China, few of them gave detailed information about how the instruction was delivered. Therefore, there is an urgent need for research on specific instructional models and reliable data in the teaching community.

4.1.2 Research on the Use of the Case Method to Enhance Critical Thinking in Domestic Students

The rapid growth of professional education in China has given rise to various pedagogical adaptations, with the case method standing out as a particularly effective tool for fostering critical thinking. As Jin and Cortazzi (2011) delineate, the technique, which originated in Western business schools, has been aptly adapted to suit the Chinese educational context. This adaptation has had a resounding impact, especially in business studies, offering both educational and cultural relevance. In empirical terms, Lin and Huang (2018) strengthens this claim by demonstrating that the case method significantly elevates levels of student engagement, a fundamental prerequisite for nurturing critical thinking.

Examining the method through the lens of constructivism, scholars such as Xiao and Qian (2011) argue that to enhance students' critical thinking, the case teaching method in ideological and political theory courses should be carefully structured around elements such as case context, student dialogue and cooperation, and meaning construction. Liu Hui (Liu & Wang, 2012) divide the implementation of the case teaching method into five stages: selection, sorting, explanation, discussion, and evaluation. He (2014) employs the 'double five-step method, breaking down the case teaching method into in-class and after-class components. Extracurricular activities focus on teachers selecting cases, framing questions, outlining materials,

and guiding students to resolve problems through extracurricular learning. Students are also expected to write case analysis reports after class and apply the knowledge acquired from the case studies.

Approaching from a broader teaching theory perspective, Yang (2007) suggests that the initial step in employing the case method is to distill the essential teaching content. This is followed by a structured process that includes case selection, problem formulation, and classroom presentation, leading to organized discussions. The educator's role is crucial in bridging theoretical concepts with practical discussions, thereby fostering students' ability for reflective thinking. In the practical application of case teaching in ideological and political theory courses, scholars have also integrated theoretical methods from other disciplines. For example, Wang (2010) has applied psychological contract theory to group discussions in case teaching. Yang (2006) advocates the formation of a 'learning group' to optimize the case teaching method.

In summary, the case method has evolved into a highly adaptable and culturally congruent pedagogical tool in China, proven to significantly enhance critical thinking among domestic students. Its multi-layered approach, which incorporates traditional philosophies and multidisciplinary theories, contributes to its effectiveness and wide acceptance.

4.1.3 Research on the Enhancement of Critical Thinking among Domestic University Students

Enhancing critical thinking in Chinese university students is an increasingly important focus in educational research, particularly given the criticism often levied against China's traditionally rote and exam-oriented educational system. The research landscape has identified multiple factors that play a role in this development, ranging from teaching methods to policy initiatives.

Firstly, the impact of teaching methods cannot be overstated. A study by Wang (2006) provided empirical support for the efficacy of modern pedagogies like problem-based learning (PBL) over traditional lecture-based methods in fostering critical thinking. Further bolstering this line of research, Bell (2019) found that Students in active learning environments are thus required to move away from traditional passive learning to adopt approaches that are based on participation, independent inquiry, practical ability, problem-solving skills, teamwork, the development of critical thinking skills, and formative assessments that such approaches require (Bell, 2019, p. 7).

Assessments and examinations are another significant variable. According to Ryan (2019), research highlights how high-stakes exams like the Gaokao can potentially hamper critical thinking development by encouraging memorization and rote learning.

Faculty attitudes and training also play a crucial role. Tian and Low (2011) found that while Chinese instructors value critical thinking, they face challenges in integrating these skills into their curriculum due to structural constraints. This aligns well with studies that examine curriculum changes. For instance, Cui and Teo (2023) found that three directionally oriented discursive moves, 'opening up', 'branching out', and 'tossing back', are productive in drawing out students' critical thinking.

Lastly, Student attitudes and perceptions represent another layer of complexity. Tan (2020) indicates that while some students are open to the development of critical thinking, others express hesitation, often due to cultural norms around authority and social harmony. This brings us to the macro-level factors like policy and institutional roles.

Given the changing landscape of China's educational system, these studies are subject to limitations in terms of sample sizes, contexts, and rapidly evolving educational norms. Nonetheless, they offer a multifaceted perspective that

suggests that fostering critical thinking in Chinese university students requires a complex, multi-dimensional approach that engages with pedagogical, cultural, and institutional variables.

4.2 Foreign Research on Students' Critical Thinking

Firstly, one prevalent approach to fostering critical thinking is through specialized courses. Critical thinking can be taught in a specific course that focuses on critical thinking theories, skills, and practices. Supporters of teaching critical thinking as a specific set of skills suggest that it should be taught as a dedicated program that aims to impart to students the critical thinking theoretical framework, concepts, and skills (Alsaleh, 2020, p. 24).

However, beyond these specialized courses, there's a compelling argument for a more integrated approach. Duron et al. (2006) claimed that all disciplines need to design and manage courses in a manner that ensures that students effectively move toward critical thinking. They suggested a five-step framework based on existing theory and best practices in cognitive development, effective learning environments, and outcomes-based assessments. They argued that this model could be implemented in any course and would encourage students to engage in critical thinking. This model consists of the following steps: 1. determine learning objectives; 2. teach through questioning; 3. practice before you assess; 4. review, refine, and improve; and 5. provide feedback and assess learning. Thus, implementing CT through this framework clearly requires a commitment to active, student-centered learning. Furthermore, teachers should provide thoughtful consideration to current instructional methods and the personal beliefs that drive them before contemplating this particular approach to teaching (Alsaleh, 2020, p. 25).

Moving on to theoretical underpinnings, various frameworks have been developed to dissect what constitutes critical thinking. The study of critical thinking in university students has been a focal point across various academic disciplines

including education, psychology, and philosophy. One comprehensive approach to understanding what constitutes critical thinking was put forth by Richard Paul and Linda Elder. Their model involves elements of thought, intellectual standards, and intellectual traits, offering a detailed structure for evaluating critical thought processes (Paul, 2006). Parallel to this, Bloom's Taxonomy, originally introduced by Benjamin Bloom in 1956, remains a foundational framework for understanding educational objectives. It categorizes cognitive skills into different levels, starting from basic knowledge to more complex forms such as analysis, evaluation, and synthesis (Bloom, 1956).

Assessing critical thinking in university students has also been a challenging endeavor. To this end, standardized tests like the California Critical Thinking Skills Test (CCTST) have been widely used. Developed by Facione, this tool aims to measure core reasoning skills and has undergone rigorous validation (Facione, 1990). Another assessment tool that has gained attention is the Watson-Glaser Critical Thinking Appraisal, which offers a different set of criteria for measuring critical thought (Ennis, 1993).

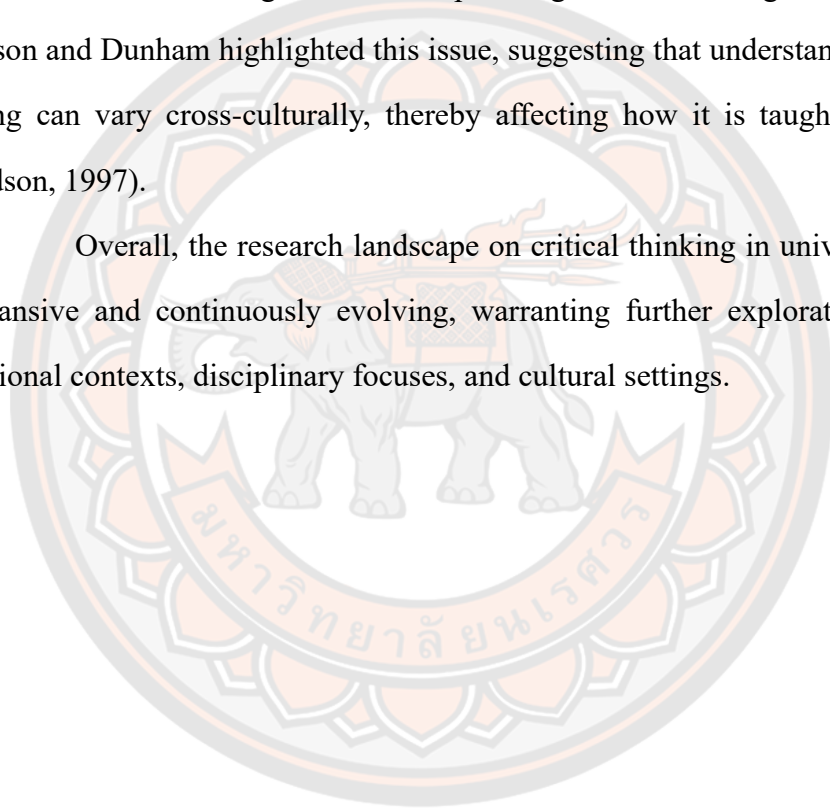
Furthermore, the pedagogical methods employed in higher education can significantly impact the development of these skills. The teaching methods employed in universities can significantly influence the development of critical thinking skills. Research conducted by Abrami et al. suggests that active learning, problem-based learning, and the use of case studies tend to improve these skills (Abrami et al., 2015). Collaborative learning environments have also shown positive effects on critical thinking. For instance, a study by Gokhale concluded that peer interaction and collaborative learning significantly enhance students' ability to think critically (Gokhale, 1995).

Moreover, in the digital age, technology has introduced new variables into the equation. Technological advancements, including online education platforms,

have introduced new variables into this equation. Garrison, Anderson, and Archer explored the role of online discussions and found that computer conferencing can provide a text-based environment conducive to critical inquiry (Garrison et al., 2000).

Despite this progress, there are still challenges to overcome. Huba and Freed pointed out that the lack of universally accepted methods for assessing critical thinking remains a significant hurdle (Huba, 2000). Furthermore, cultural factors can influence critical thinking skills, complicating both teaching and assessment. Davidson and Dunham highlighted this issue, suggesting that understanding of critical thinking can vary cross-culturally, thereby affecting how it is taught and assessed (Davidson, 1997).

Overall, the research landscape on critical thinking in university students is expansive and continuously evolving, warranting further exploration in various educational contexts, disciplinary focuses, and cultural settings.



5. Conceptual Framework

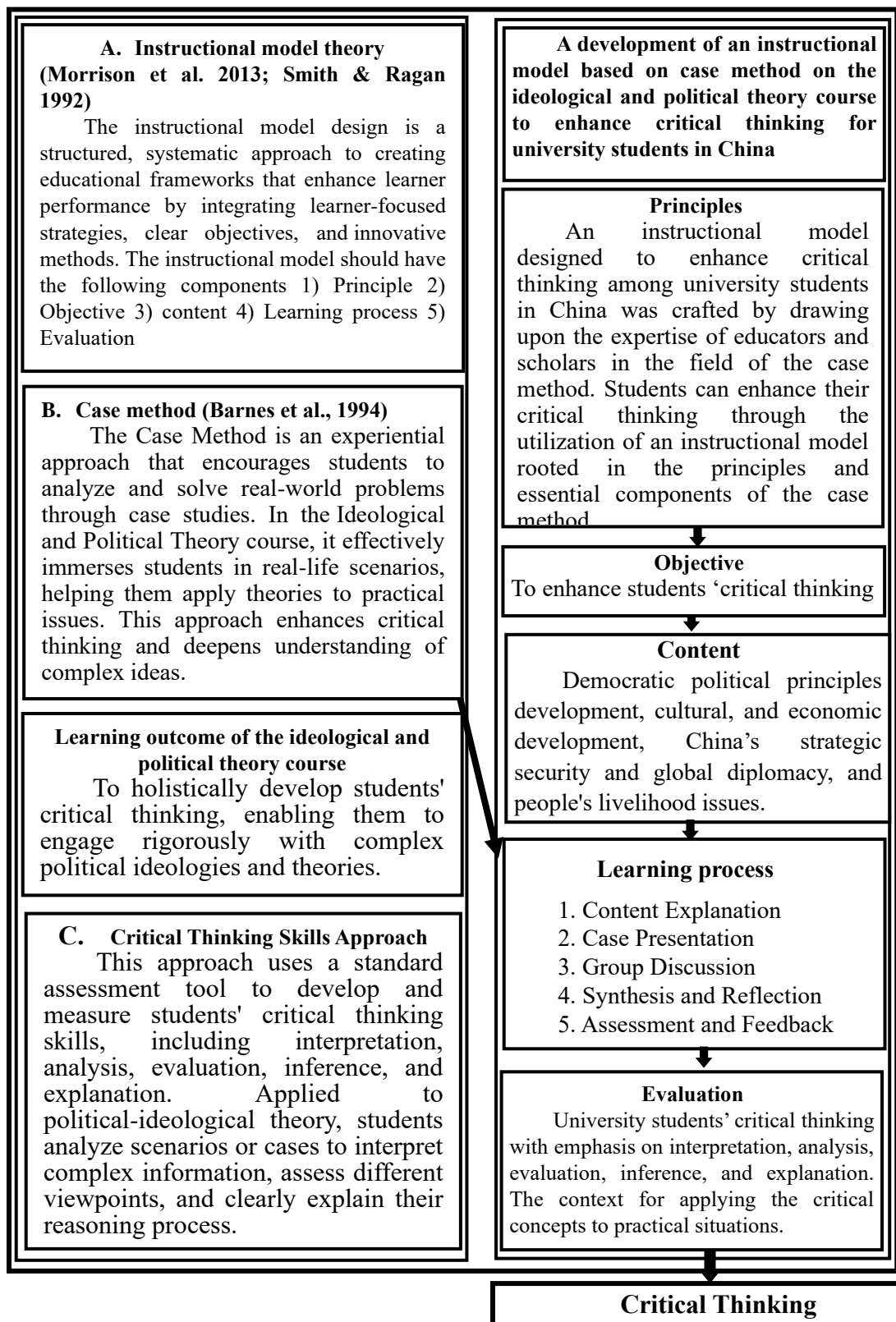


Figure 6 Conceptual Framework

CHAPTER III

RESEARCH METHODOLOGY

The focus of this study was: 1)To study how Case Method can be implemented to enhance critical thinking, 2)To develop and assess the quality of an instructional model based on Case Method to enhance the university students' critical thinking, and 3)To implement and study the results of the university students' critical thinking after learning with the instructional model based on Case Method to enhance the university students' critical thinking, and 4)To explore students' satisfaction towards learning with an instructional model based on Case Method to enhance university students' critical thinking.

This chapter describes and explains the steps involved in 1) Studying how can Case Method be implemented to enhance the university students' critical thinking. 2) research design and development, 3) implementation and studying the results of students' critical thinking after instructional model implementation, 4) exploration of students' satisfaction towards the instructional model as follows.

The research methodology encompassed four pivotal phases: design and development, implementation, and evaluation. In the design and development phase, the objectives were clarified, and strategies were formulated to address the identified needs. During the implementation phase, the instructional design was executed. The evaluation phase centered on assessing the progress towards attaining the predefined goals, emphasizing validating the progression rather than merely assessing or judging the outcomes. The research procedure of this study was summarized as follows:

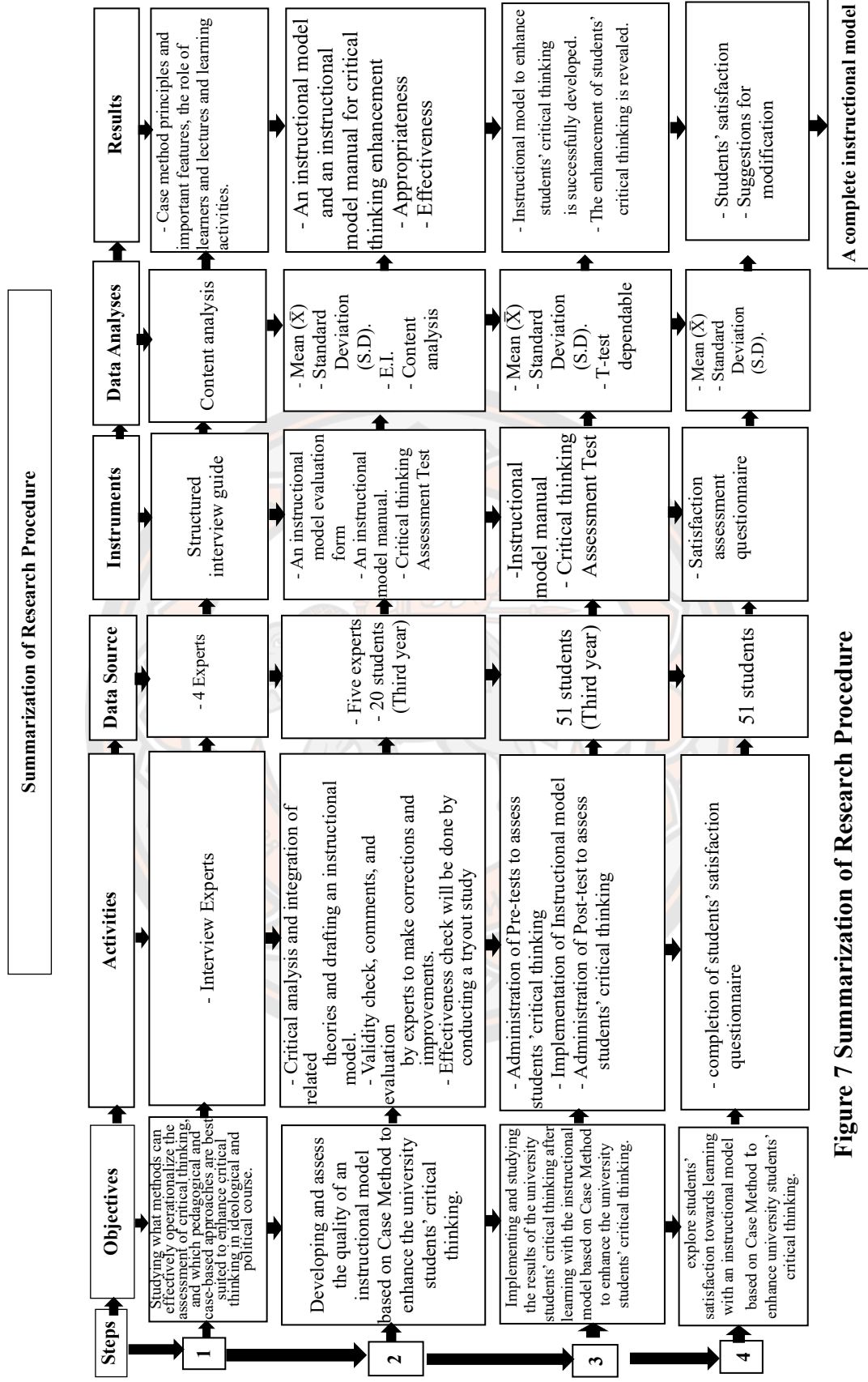


Figure 7 Summarization of Research Procedure

Stage 1: Studying how the Case Method can be used in an instructional model to enhance critical thinking.

The researcher studied case method that can be implemented to enhance university students' critical thinking. The case method principles and features, procedures, steps, and activities are explored to develop an instructional model based on the case method to enhance students' critical thinking. This is done through the review of documents, and interview of experts.

Data Source

To demonstrate the effectiveness of the case method in enhancing critical thinking among university students, consultations were held with four experts specializing in this approach. These experts were carefully selected based on relevant criteria, each held a doctoral degree and had at least five years of professional experience in fields closely related to the case method. The panel consisted of scholars and academic advisors in Curriculum and Instruction, with a focus on the case method. They reviewed and validated the scenarios and activities created by the researcher to ensure they aligned to enhance critical thinking through the case method.

Research Instruments

Related to the expert interviews, 4 experts were interviewed. The interviews focused on obtaining theoretical information on case method principles and important features, the roles of learners and instructors in the case method process, and case method learning activities that could be used to enhance university students' critical thinking. The interview guide for experts included discussions about the following instruments.

Table 8 Item Objective Congruent (IOC) for the Structured Interviews for Experts on How Case Method Can Be Used to Enhance University Students' Critical Thinking

Structured Interview for Experts on how case method can be used to enhance university students' critical thinking								
Evaluated Items		Expert					IOC	Interpretation
		1	2	3	4	5		
1	What are the specific principles and features of the case method that directly contribute to the enhancement of critical thinking in university students?							
2	What should be the role of learners and lecturers, in the effective use of the case method approach in developing critical thinking?							
3	What activities can be used to enhance critical thinking among university students?							

To assess the content validity of the research instruments, a panel of experts was asked to rate the congruence between each interview item and its corresponding objective. The rating scale ranges from -1 to +1, where a rating of +1 signifies that the item is "Highly Relevant" to the objective, a rating of 0 indicates "Not Sure," and a rating of -1 means the item is "Not Relevant." After collecting these ratings, the Index of Item-Objective Congruence (IOC) for each item was calculated by summing up the expert ratings and dividing by the number of experts. This is expressed as

$$IOC \text{ of an item} = \frac{\text{Sum of expert ratings for the item}}{\text{Number of experts}}$$

This rigorous process ensures that each item in the interview guide is both relevant and aligned with the research objectives.

Validity check

After receiving approval from the academic advisor, all structured interviews were submitted to a panel of four experts for validity assessment, commonly known as the Index of Item-Objective Congruence (IOC). The results were tested by the five experts in step 2. These four experts were carefully selected from diverse fields: two specialized in research and evaluation, one was either a lecturer or a professor with experience in case-based teaching approaches, and another was an expert well-versed in utilizing the case method to enhance students' cognitive and practical abilities. Each expert held a doctorate degree and had a minimum of 3 years of teaching experience. Items within the structured interviews were individually scrutinized, and only those that received approval were selected for use. All feedback from the experts, including suggestions, comments, and opinions, was meticulously recorded. This feedback was then incorporated into the research instruments, which underwent revisions and reordering accordingly. As a result, the structured interview achieved a validity value of 1.00. Data collection was conducted accordingly.

The researcher conducted the interview herself. She interviewed the various parties involved face-to-face to obtain firsthand, "fresh," and relevant information. The researcher interviewed the experts and met them in person. During the various interviews, the researcher took down notes based on the information provided by the parties involved.

Data Analysis

The data that was obtained from structured interviews was analyzed using content analysis. The results of the expert interview on implementing the case method for successfully enhancing university students' critical thinking considered the

principles and key features of the case method, the roles of learners and instructors, and the activities and learning instruction involved in the case method.

Stage 2: Developing and assessing the quality of an instructional model based on the Case Method to enhance the university students' critical thinking.

Design of Instructional Model

To effectively implement an instructional design, it was often essential to use a well-organized management system. This system helped in smoothly transitioning from the initial planning stages to the full realization of a revamped or improved curriculum. In this study, both deductive and inductive methodologies were utilized. The deductive method enabled the research to analyze theories and concepts in depth, isolating key elements that served as the foundation for the instructional model. This model was specifically designed to enhance students' critical thinking.

The researcher employed both deductive and inductive methodologies to formulate the conceptual framework and develop an instructional model aimed at enhancing the critical thinking of university students. The inductive approach entailed reasoning processes in which generalizations were drawn from an accumulation of empirical evidence. Concurrently, the researcher utilized the deductive method to distill the most pertinent insights from existing theories and concepts, which served as the foundational basis for the development of the instructional model.

The literature covering instructional development theory, the case method, and critical thinking strategies provided a wealth of information. This information was then synthesized into distinct themes, which subsequently guided the formulation of the instructional model.

The design of an instructional model was divided into four main characteristics involved in the literature review including instructional model development, implementation, and evaluation, compilation, and confirmation of

theoretical support from the case method, perspectives of critical thinking, and effective strategies for teaching critical thinking.

Draft of an Instructional Model Development

1. Theoretical Foundations

1.1 Case Method

The case method is an instructional approach that immerses students in real-world situations requiring thorough analysis, critical evaluation of multiple perspectives, and the formulation of reasoned, evidence-based solutions. By presenting students with complex scenarios, the case method encourages active learning and engagement beyond rote memorization. Students are prompted to think critically, discuss diverse viewpoints, and apply theoretical knowledge to solve practical problems.

In the context of Ideological and Political Theory courses, the case method is particularly effective as it situates students within realistic political and ideological situations. Students must navigate complex issues, assess conflicting ideologies, and make informed judgments. This application of abstract theory to tangible scenarios helps enhance students' critical thinking skills, enabling them to analyze complex situations and make decisions that reflect a nuanced understanding of political and ideological theories.

1.2 Social Constructivist Theory

This instructional model also incorporates principles from Vygotsky's social constructivist theory, which emphasizes the importance of social interaction in learning. According to this theory, knowledge is constructed through collaboration and social engagement, where learning is inherently tied to context and interaction with others. Vygotsky's perspective underscores the value of peer interaction and guided instruction, where teachers act as facilitators rather than mere transmitters of knowledge.

In implementing this instructional model, the social constructivist approach fosters a learning environment where students are encouraged to work together, discuss ideas, and challenge each other's viewpoints. Through these interactions, students build a deeper understanding of the material. The collaborative nature of this model aligns with Vygotsky's emphasis on learning through social interaction, which supports critical thinking by allowing students to hear diverse perspectives, articulate their own reasoning, and refine their thoughts based on feedback from peers and instructors.

1.3 Critical Thinking Theory

The model is designed to develop core critical thinking skills essential for engaging with complex political and ideological issues. These skills include:

- 1) **Interpretation:** Understanding and expressing the meaning of various forms of information, from data to theoretical arguments.
- 2) **Analysis:** Breaking down complex information to identify underlying structures, relationships, and implications.
- 3) **Evaluation:** Assessing the credibility, relevance, and validity of information and arguments.
- 4) **Inference:** Drawing logical conclusions and making judgments based on evidence and reasoning.
- 5) **Explanation:** Clearly articulating the reasoning process, ensuring coherence and transparency in presenting ideas.

The instructional model emphasizes these skills as they are foundational to understanding and analyzing ideological and political content. By focusing on these critical thinking components, students are equipped to examine issues rigorously, consider different viewpoints, and make well-reasoned decisions.

2. Components of the Instructional Model

The instructional model comprises five key components that provide a comprehensive framework for enhancing critical thinking among students. These components are

carefully aligned with the theoretical foundations of the case method and social constructivist theory to create an interactive and rigorous learning environment.

2.1 Principles

The principles of this instructional model draw from the case method, with a focus on solving real-world problems, fostering critical engagement, and encouraging reflective analysis. The model prioritizes authenticity by using cases that mirror real-life political and ideological situations, helping students connect theoretical concepts with practical scenarios. Collaborative learning is emphasized, encouraging students to work in teams and engage in discussions that promote learning from one another. By incorporating diverse perspectives, the model challenges students to explore alternative ideologies and frameworks, broadening their understanding. Reflection and analysis are also integral, encouraging students to critically evaluate their own ideas and thought processes. Together, these principles provide a structured yet adaptable framework that enables students to actively engage with complex content, enhancing their critical thinking skills through hands-on application.

2.2 Objectives

The primary objective of this instructional model is to enhance critical thinking for university students in China.

2.3 Content

The content is organized into four main modules, each designed to address critical areas of ideological and political theory:

- 1) Democratic Political Principles: Examining the theory and practice of democracy, principles of the rule of law, and governance.
- 2) Cultural and Economic Development: Analyzing the principles and objectives of cultural prosperity, economic growth, and structural reforms.

- 3) China's Strategic Security and Global Diplomacy: Understanding national security strategies, military modernization, and China's diplomatic relations.
- 4) People's Livelihood Issues: Addressing current livelihood challenges, social governance, and measures for improving social welfare.

Each module includes multiple lessons, with specific topics that guide students through key aspects of political and ideological issues. This structure ensures that students have a well-rounded understanding of both theoretical and practical elements of political thought.

2.4 Learning Process

The learning process consists of five structured steps, designed to foster critical engagement and the application of knowledge:

Content Explanation: The instructor provides a foundational overview, covering relevant theories and context and poses critical questions to provoke initial thoughts.

These steps are informed by empirical research and educational theory, creating an engaging learning environment that supports students in developing critical thinking and problem-solving abilities.

Case Presentation: Detailed cases are presented, often incorporating multimedia aids, to highlight essential issues and link theory to practical scenarios.

Group Discussion: Students work in groups to analyze the case, debate various viewpoints, and assess the implications of different decisions.

Synthesis and Reflection: Students consolidate their learning by reflecting on group discussions and articulating their conclusions in the context of broader political theory.

Assessment and Feedback: Instructors evaluate students' understanding and

critical engagement, providing constructive feedback that guides further improvement.

3. Evaluation

The model's evaluation is comprehensive, assessing both critical thinking development and student satisfaction. The evaluation is conducted in two main parts:

3.1 Evaluation of Critical Thinking

This aspect measures students' progress in critical thinking skills through pre-test and post-test assessments. By comparing these results, instructors can gauge the effectiveness of the instructional model in enhancing students' analytical abilities.

3.2 Evaluation of Satisfaction with Learning Instruction

To assess the students' satisfaction with the instructional process, a satisfaction questionnaire using a 5-level Likert scale is administered. This feedback provides insights into students' learning experiences and areas for potential improvement.

4. Evaluation Tools

The following tools are used for evaluation:

Critical Thinking Assessment Test: Administered as both a pre-test and post-test to measure changes in students' critical thinking levels.

Satisfaction Questionnaire: Designed to capture students' feedback on their learning experience and overall satisfaction with the instructional model.

5. Evaluation Criterion

The evaluation criterion is divided into specific standards for both critical thinking and satisfaction:

Critical Thinking Assessment: Pre-test and post-test results are compared using a dependent t-test to evaluate progress.

Satisfaction Levels: Assessed using the 5-level Likert scale:

4.50 - 5.00: Highest level of satisfaction

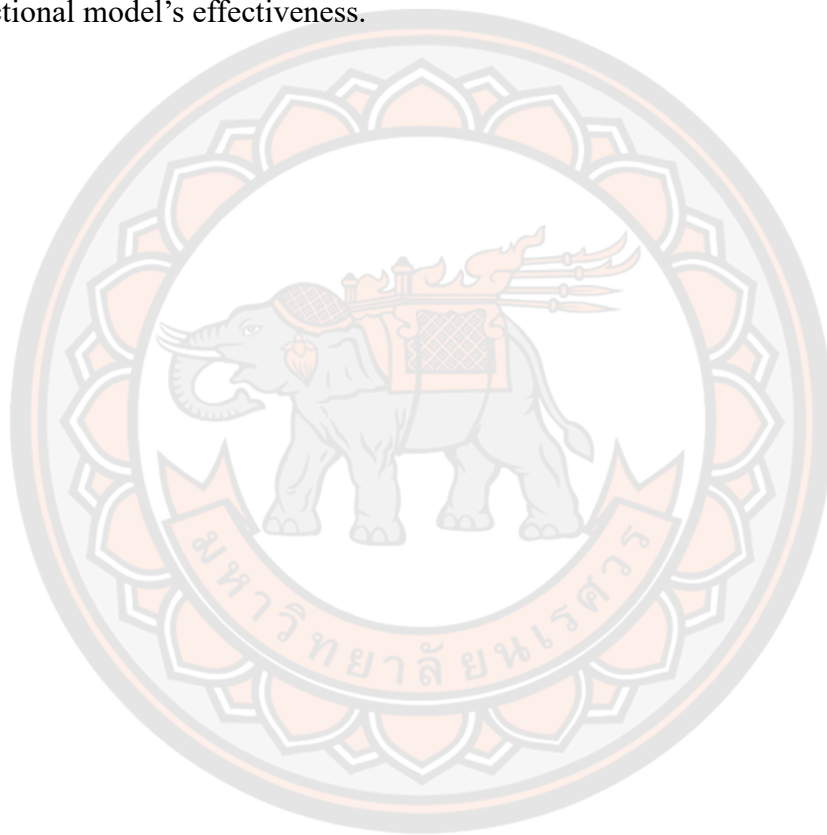
3.50 - 4.49: High level of satisfaction

2.50 - 3.49: Medium level of satisfaction

1.50 - 2.49: Low level of satisfaction

1.00 - 1.49: Lowest level of satisfaction

These criteria ensure a structured and measurable evaluation of both cognitive and experiential outcomes, allowing for a comprehensive assessment of the instructional model's effectiveness.



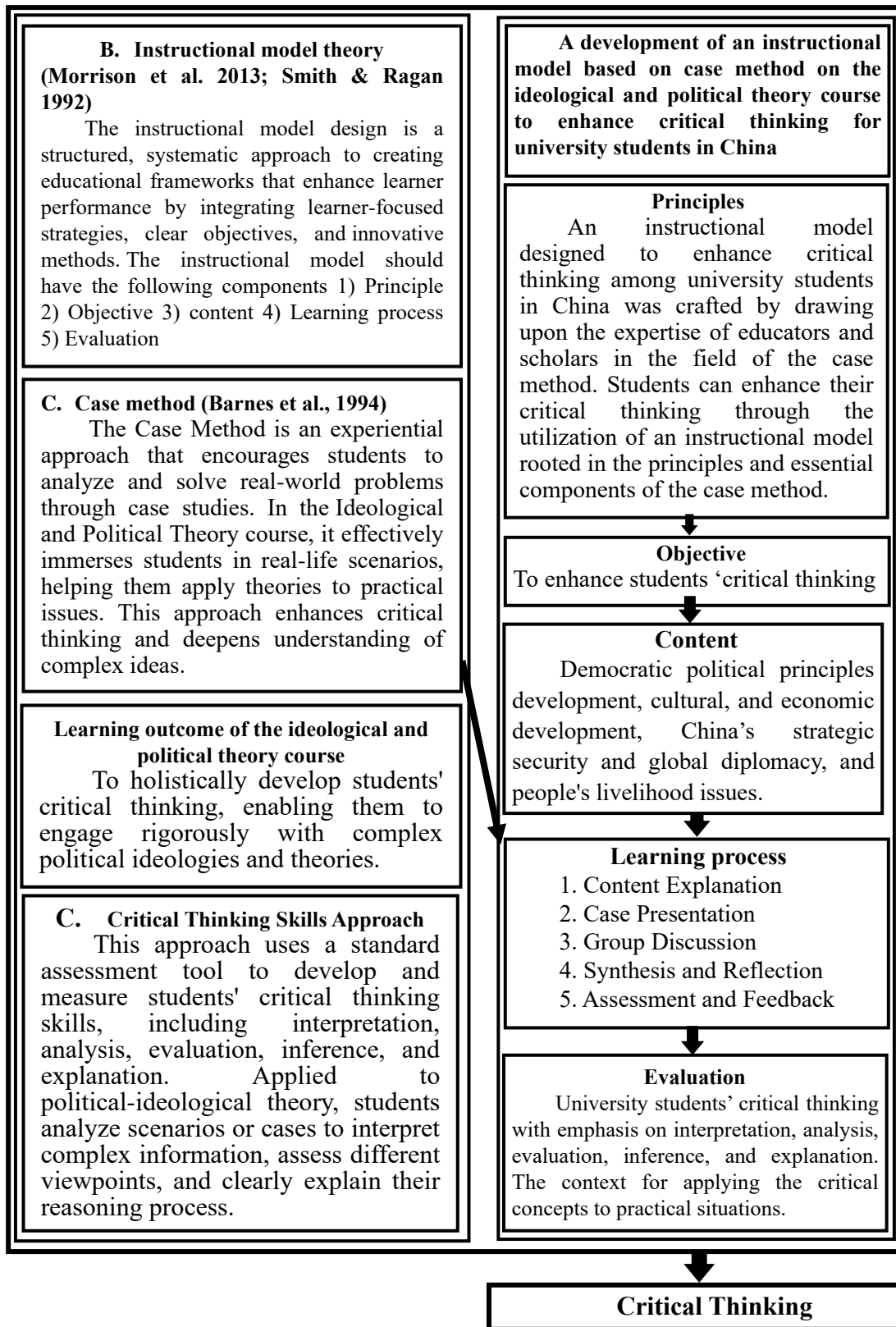


Figure 8 Instructional model to enhance Students' Critical Thinking

4. Assessing the quality of Instructional Model development

Data Source

There are 5 experts and professionals selected to help review this study. These experts were selected based on explicit criteria to ensure academic rigor and reliability. Specifically:

a) Two experts in curriculum and instruction, one in measurement and evaluation, one in ideological and political theory courses, and one in instructional research and development were chosen.

b) All experts have a doctoral degree and at least five years of relevant teaching and research experience in their respective fields.

After the panel of experts had reviewed and evaluated the instructional model, a pilot group was formed, consisting of 20 third-year students from Guangxi University of Science and Technology. This group was similar to the sample group but not the original sample group. The purpose of selecting this group is to assess the effectiveness of the instructional model. Following the pilot study, modifications were made to enhance the comprehensiveness and suitability of the model.

Research instruments and development of research instruments

4.1 Research instruments

The following instruments were used for instructional model evaluation:

4.1.1 Instructional model evaluation form

4.1.2 Instructional model manual evaluation form

4.2 Development of research instruments

In developing the instructional model evaluation form, the researcher studied documents on how to develop an instructional model evaluation form and instructional model manual. The information on the form focused on the potential components of instructional model development (principles, objectives, content,

learning process, and evaluation). A 5-level scale ranging from 1-5 is used by experts form instructional model and instructional model manual evaluation.

The instructional manual evaluation consists of ten key elements, and it is used to evaluate all supporting materials used to enhance students' critical thinking. The evaluation form for the instructional model is designed to assess key components that contribute to curriculum development. It consists of five specific criteria related to the development of an instructional model. Each criterion is rated on a scale from 1 to 5, with 1 being the lowest and 5 being the highest possible score. The 5 criteria included:

Table 9 Instructional Model Evaluation Form

Elements of Validity Check	Rating Scale				
	1	2	3	4	5
Principle					
Objective					
content					
Learning process					
Evaluation					

The instructional manual evaluation consists of nine key elements, and it was used to evaluate all supporting materials used to enhance students' critical thinking.

Table 10 Instructional Model Manual Evaluation Form

Key Elements of Instructional Model Manual	Rating Scale				
	1	2	3	4	5
The objective of the instructional manual is clear and consistent with the current needs of the students					
The introduction of using an instructional model is precise and applicable					
The learning structure is consistent with the content and timeframe					

The learning procedure is orderly organized and interrelated with each other

Learning activities are consistent with content and real practice

The duration of each session is long enough for both lesson and practice

Learning materials are consistent with the content

Data collection

1. The data was collected using an instructional model evaluation form. It was completed by the 5 experts to express their level of appropriateness and suggestions.

2. Additionally, a tryout was conducted with 20 students to examine the model's effectiveness index.

Data Analyses

The results were analyzed using descriptive statistics (mean (\bar{X}) and Standard Deviation (S.D)). The second part of the evaluation form which required experts to give comments and suggestions was analyzed using content analysis. A mean score of 3.50 or over was considered that an instructional model development based on case method to enhance critical thinking is appropriate. The researcher was advised by the experts to pilot test the instructional model with other related documents such as the instructional model manual, and critical thinking assessment. The instructional model was subsequently pilot-tested with a class of 20 third-year students from Guangxi University of Science and Technology during the first semester of the 2024 academic year to assess its practicability and effectiveness.

Scoring Transformation for appropriateness of the instructional model

According to Buosonte (2019, p. 35), score of validity is interpreted as follows:

- 4.50 - 5.00: The highest level of Appropriateness and acceptance

- 3.50 - 4.49: The high level of Appropriateness and acceptance
- 2.50 – 3.49: The medium level of Appropriateness and acceptance
- 1.50 – 2.49: The low level of Appropriateness and acceptance
- 1.00 – 1.49: The lowest level of Appropriateness and acceptance

An effective index (E.I.) of ≥ 0.50 was considered effective for the instructional model. The Effective Index (E.I.) of an instructional model based on the case method is calculated using the formula according to Goodman et al. (1980) as follows:

$$\text{Effective Index (E.I.)} = \frac{\sum \text{post} - \sum \text{pre}}{(S)(N) - \sum \text{pre}}$$

Where:

- $\sum \text{post}$ = Sum of post-test score
- $\sum \text{pre}$ = Sum of pre-test score
- S = Full score
- N = Total number of students

The results of the pilot study were used to improve an instructional model further to enhance critical thinking including developmental process, research tool development, activities, and the process of instruction.

Stage 3: Implementing and studying the results of students' critical thinking after learning with the instructional model based on the Case Method to enhance the university students' critical thinking.

This phase explains the process of instructional model implementation to enhance Students' critical thinking.

1. Experimental Research Design

The researcher employed a one-group pre-test post-test design according to (Buosonte, 2019, pp. 42-43), combining qualitative and quantitative data collection as follows:

Experimental Group	Pre-test	Treatment	Post-test
Gr.1	O1	T	O2

Where:

Gr.1 Represents the experimental Group

O1 Represents core test before instructional model implementation
(Pre-test)

T Represents treatment

O2 Represents core test after instructional model implementation
(Post-test)

From the design above, the study was conducted with a single group. This group had a pre-test and a post-test. The pre-test was designed to assess and evaluate students' critical thinking before implementing the instructional model. After the pre-test, the sample group received treatment. The treatment was based on the steps of the instructional model that was developed based on the case method. After the treatment, a post-test was administered to assess and evaluate students' critical thinking after learning with the instructional model. The study used a single-group pre-test and post-test design to meet two objectives: 1) to assess students' critical thinking before and after using a case-based instructional model, and 2) to compare the effectiveness of this model in enhancing critical thinking.

2.Course Participants

The course participants included 51 third-year students who had the Ideological and Political Theory course. The study included third-year students from Guangxi University of Science and Technology. A sample was taken from the study population. The sample included 51 third-year students who had already taken the Ideological and Political Theory course. The class was selected from a total of 10 classes by clustered random sampling.

3.Course Procedure for the Experiment

For conducting this research and collecting data, the research procedures were divided into three steps as follows:

This study contributed to enhancing university students' critical thinking. The scope of the research context involved developing an instructional model based on the case method. The course context was "Enhancing Students' Critical Thinking." The researcher selected this particular course subject due to its focused emphasis on the development of students' critical thinking. The students were required to be involved in a series of small group activities, class discussions, and collaborative problem-solving activities through working with real-life experiences.

This course primarily focused on enhancing students' critical thinking through the integration of case studies derived from ideological and political theory course. Classroom activities required students to engage in the analysis and discussion of these cases, aiming to address real-world problems that were pertinent to the application of critical thinking.

The instructional model lasted for 24 hours, spread over 8 weeks, consisting of 3 hours per week. The course was conducted during the fall of semester I for the academic year of 2024. The course was divided into 4 chapters. The researcher met with the students, explained the purposes of the study, and requested participation in the study. The students were informed that they were being asked to

participate in an ongoing study to enhance critical thinking and that they would participate in in-class activities as part of the course.

The pre-test was administered during the session before the official start of the course. Students had 45 minutes to complete the pre-test. Instructional materials and related handouts were distributed at appropriate times during the course.

The post-test was administered to the participants at the last session after all activities were completed. A self-report questionnaire on students' perceptions of their learning was administered after students took the post-test after the last session of the course, and all learning activities were completed. The students were given 45 minutes to complete the post-test and 20 more minutes to fill out the perception questionnaire.

4. Course Context

This course on "Enhancing Critical Thinking " is designed with the following key elements:

4.1 Contextualized Learning: Utilizes current political and ideological events, as well as historical case studies that students may find relevant, to serve as the backdrop for classroom activities aimed at enhancing critical thinking.

4.2 Structured Support: Provides a scaffolded learning environment, complete with guided reading materials, lecture notes, and supplementary resources, to facilitate the development of students' critical thinking.

4.3 Interactive Engagement: Offers a variety of opportunities for peer interaction, including group discussions, debates, and role-playing exercises, all designed to enhance critical thinking through the study of ideological and political theory course.

4.4 Skill Development: Focuses on the targeted development of critical thinking, including but not limited to, logical reasoning, argument analysis, and evaluative judgment, guided by expertly crafted rubrics and assessment criteria.

The course content was meticulously curated to include real-world situations and challenges that enhance students' critical thinking abilities. These materials were selected, organized, and prepared by the researcher and subsequently reviewed by academic advisors and subject matter experts.

5. Learning Module

The instructional module is developed based on well-founded research in pedagogical methodologies that specifically focus on enhancing critical thinking. Authentic events and genuinely complex problems were employed in learning activities that required students' critical thinking and elicited students' justification for answers. The development of critical thinking training was combined with the following learning module:

Table 11 Learning Module

NO.	Learning Module	Teaching Content	Hours
1		Lesson 1 Theory and practice of whole-process democracy	2
2	Chap.1 Democratic political principles development	Lesson 2 Comprehensive Rule of Law principle and path	2
3		Lesson 3 Comprehensive Strict Party Governance Effects	2
4		Lesson 4 Principles and Objectives of Cultural Prosperity	2
5	Chap.2 Cultural, and economic development	Lesson 5 The development of the modern economic system	2
6		Lesson 6 Comprehensive Deepening of economic and cultural Reforms	2
7		Lesson 7 National Security Strategy	2
8	Chap.3 China's Strategic Security and Global Diplomacy	Lesson 8 Military Modernization	2
9		Lesson 9 Global Diplomacy with Chinese Characteristics	2
10		Lesson 10 Causes of current livelihood problems in China	2
11	Chap.4 People's Livelihood Issues	Lesson 11 Building a moderately prosperous society in all aspects	2

12	Lesson 12 Strengthening and Innovating Social Governance to Promote Livelihood Protection	2
Total		24

6. Learning Activities

The learning activities were designed as small group activities to enhance students' critical thinking. The activities are divided into the following steps:

Small Group Activity

The small group activity focused on group discussions. Instructional materials designed for this learning module included: (a) video clips, (b) handouts, and (c) news articles with accompanying images.

Before the group activities officially began, students were asked to watch video clips to gather relevant background information and prepare for the upcoming group discussions. The video clips contained key content related to the discussion topic, prompting students to think critically about the essential information and questions presented.

The activity consisted of three parts:

Information Gathering and Analysis: In the first part, students were required to watch the video clips and read the provided materials, analyzing the key information and forming an initial understanding of the topic.

Group Discussion: In the second part, students shared their understanding and analysis of the video content with their group members, engaging in in-depth discussions on the core issues. During the discussion, students were encouraged to ask questions and challenge each other's viewpoints, further developing their critical thinking.

Presentation and Exchange: In the third part, students presented the results of their group discussions, reporting their analysis and decisions, and

exchanging ideas with other groups. This step aimed to enhance critical thinking through peer feedback and interaction.

7. Research Instruments

The research instruments used at this stage for qualitative and quantitative data collection consisted of university students' critical thinking assessment test and instructional model manual. The description, steps, and procedures for constructing each of these instruments were discussed as follows:

7.1 Critical thinking assessment test

The chapter II of this study discusses various instruments for assessing critical thinking in educational settings. Three primary approaches are highlighted: 1) standardized tests like the CCTST, which measure cognitive and meta-cognitive skills; 2) customized assessments designed by researchers or teachers and 3) teaching students to assess their own thinking. The chapter II also reviews other well-known tests such as the WSU Guide and the Academic Profile, each with its unique focus and methodology. Writing, particularly argumentative essays, is emphasized as a valuable instrument for assessing critical thinking, supported by models like Stapleton's, which includes an assessment scale for various elements of critical thinking. Following an extensive review of the literature and comparative analysis, it has been determined that the choice of assessment methods can be tailored to align with course objectives, student needs, and the availability of teaching staff. This study posits that customized research instruments, adapted from the CCTST framework, are most suitable for assessing critical thinking among Chinese university students. Following an extensive review of the literature and comparative analysis, it has been determined that the choice of assessment methods can be tailored to align with course objectives, student needs, and the availability of teaching staff. This study posits that customized research instruments, adapted from the CCTST framework, are most suitable for assessing critical thinking among Chinese university students.

A set of questions for pre-and post-test was conducted by the researcher. With the target of using the case method to enhance critical thinking, the content of the questions for the pre-and post-test was extracted in association with the assessment criteria of critical thinking developed by Peter A. Facione (1990). According to Facione (1980), the assessment criteria for critical thinking were composed of 5 elements including Interpretation, Analysis, Evaluation, Inference, and Explanation. There is a total of 30 items which are composed and developed by the author. The content of each item was related to critical scenarios identified as key factors employing critical thinking for all its solutions.

7.2 Techniques used in constructing the critical thinking test

The researcher examined the curriculum, focusing on its objectives and descriptions, and then consulted various seminal works to construct the critical thinking test. These works include "Assessing Critical Thinking" by Ennis (1993), writings by Paul & Elder (2006) on enhancing critical thinking, and research by Al-Fadhli and Khalfan (2009). Additionally, the California Critical Thinking Skills Test (CCTST) was considered as a reputable instrument in this field for measuring both cognitive and metacognitive skills associated with critical thinking. After studying all these, the researcher then developed a critical thinking assessment test based on the content taught.

The experts, including the thesis advisor, reviewed the test. Subsequently, the researcher conducted a trial with a class of 20 third-year students from Guangxi University of Science and Technology, who served as the tryout group. Based on the feedback received from the experts and the results of the pilot study, the researcher revised the test.

7.3 Lesson plans

The lesson plans were designed according to the components and procedures of the instructional model and were used during the process of instructional model implementation.

7.4 Test Blueprint

The objective and framework section established the overarching purpose of the test, aligning it with the Ideological and Political Theory course objectives and focusing on specific critical thinking it aims to evaluate- namely, Interpretation, Analysis, Evaluation, Inference, and Explanation. The design of the test items was based on this framework, meticulously formulating questions that not only cover all intended areas of critical thinking but also integrate the core components and analytical depth of the Ideological and Political Theory course. This alignment ensured that the assessment was both comprehensive in its critical thinking evaluation and specific to the course's content and learning outcomes. The CCTST (California Critical Thinking Skills Test) is based on an agreed definition of critical thinking and has been evaluated for validity and reliability for measuring critical thinking, at the college level for four years (Facione 1990).

The CCTST is generally a multiple-choice test that consists of a variety of questions aimed at assessing different facets of critical thinking. The questions are designed to apply to a wide range of subjects, making the test useful for students and professionals in various fields. The test consists of 30 questions adapted based on the course content. The test usually takes around 45-60 minutes to complete.

In this research, the components assessed were

7.4.1 Interpretation: This involves understanding and elucidating the meaning of various data, arguments, or experiences of political ideological theories.

7.4.2 Analysis: This skill is employed to identify the intended and actual inferential relationships among statements, questions, concepts, descriptions, or other

forms of representation intended to express beliefs, judgments, experiences, reasons, information, or opinions within political ideologies.

7.4.3 Evaluation: This requires assessing the credibility of sources of information and the claims they make, as well as the logic of the arguments related to political ideologies.

7.4.4 Inference: This skill is about drawing reasoned conclusions and hypotheses from the analysis and evaluation of data and evidence on political theories.

7.4.5 Explanation: It involves presenting the results of one's reasoning in an organized, systematic way, and justifying one's reasoning process and conclusions within the context of political ideology.

The distribution of assessment components for Critical Thinking is shown as follows:

Table 12 The Distribution of Assessment Components for Critical Thinking

No.	Assessment Components for Critical Thinking	Items
1	Interpretation	6 (1-6)
2	Analysis	6 (7-12)
3	Evaluation	6 (13-18)
4	Inference	6 (19-24)
5	Explanation	6 (25-30)

Each of these questions served to test different aspects of critical thinking, from understanding the implications of a statement to identifying equivalent statements. The rewritten questions maintain core logic but change the context to different subjects to suit the course content, to achieve the purpose of testing students' critical thinking.

Students' scores were evaluated at four levels:

Table 13 Critical Thinking Components and Level Descriptions

Level	Interpretation	Analysis	Evaluation	Inference	Explanation
Excellent (5-6)	A clear understanding of complex concepts.	Thoroughly, identifies assumptions and deeper meanings.	Strong, well-supported judgments.	Logical, insightful conclusions.	Detailed, coherent explanations.
Good (4)	Good understanding may miss subtle details.	Reasonable analysis lacks depth in complex cases.	Generally, sound judgments may lack support.	Mostly accurate but sometimes overlooks alternatives.	Clear explanations, but could benefit from more depth.
Satisfactory (2-3)	Basic understanding struggles with abstract ideas.	Superficial analysis misses deeper connections.	Judgments rely on incomplete reasoning.	Partially valid inferences due to insufficient evidence.	Basic explanations, lacking clarity or depth.
Needs Improvement (0-1)	Difficulty understanding even basic concepts.	Shallow analysis fails to address key components.	Weak judgments, little consideration of evidence.	Flawed inferences with inadequate evidence.	Minimal explanations, unclear and disconnected.

Table 14 Overall Total Score Assessment

Level	Overall Total Score (Out of 30)	Description
Excellent	24-30	Profound understanding and application of critical thinking across all components. Can interpret complex ideas, analyze situations deeply, evaluate arguments effectively, draw sound inferences, and provide well-supported explanations.
Good	18-23	Solid grasp of critical thinking with occasional gaps in depth or clarity. Can interpret and analyze content reasonably well, but may lack nuance in evaluation and explanation. Inferences are generally sound, but lacking depth.
Satisfactory	12-17	Displays the basic level of critical thinking. Can interpret and analyze information, but evaluations and inferences may be superficial or incomplete. Explanations tend to be less detailed, critical thinking may not support complex situations.
Needs Improvement	0-11	Minimal application of critical thinking. Struggles with interpreting content, analyzing arguments, and drawing meaningful inferences. Evaluations may lack depth or validity, and explanations unclear or unsupported.

7.5 Validity Check

7.5.1 Content Validity Assessment

A validity check was conducted for a critical thinking test, while the lesson plan was evaluated by experts. A set of documents, including the learning module, lesson plans, and critical thinking test, were submitted to five experts for assessing content validity and appropriateness of the instruments. These experts consisted of individuals holding doctoral degrees in Curriculum and Instruction, as well as Research and Development. The criteria for the Critical thinking test were explained to the experts before the content validity check. Each item was individually examined, and all approved items were selected for use. All suggestions and opinions from the experts were noted, and the research instruments were revised and re-ordered based on their recommendations.

The Index of Content (IOC) is a commonly used method for establishing content validity. It is essentially an average rating across experts on how relevant each item is for what aiming to measure. The IOC is usually calculated as follows:

$$\text{IOC} = \frac{\text{Number of experts agreeing that the item is valid}}{\text{Total number of experts}}$$

Figure 9 The Index of Content Calculation Formula

If the IOC is greater than or equal to 0.50 ($\text{IOC} \geq 0.50$), it is generally considered to be an acceptable threshold. This indicates that at least half of the experts agree that the test items or content are valid and relevant. The validity for the critical thinking test was 0.80 while the lesson plans were at the highest level of appropriateness ($\bar{X} = 4.61$).

7.5.2 Statistical Analysis Using Paired Sample t-Test

In order to validate the instructional model's effectiveness in enhancing students' critical thinking, a paired sample t-test was conducted. This statistical test was applied to compare the mean scores of students' performance in the pre-test (administered before the instructional intervention) and the post-test (conducted after the intervention). The aim was to determine whether the instructional model based on the Case Method produced a statistically significant improvement in critical thinking.

The t-test measured whether the difference between the pre-test and post-test mean scores was statistically significant, while the p-value confirmed the level of significance. Specifically, if the p-value was less than 0.01, the difference between the pre-test and post-test results was deemed statistically significant, indicating that the improvement in students' critical thinking was not due to random variation. The results showed that students' critical thinking skills improved significantly after the instructional intervention, with a post-test mean score of $\bar{X} = 24.41$ (S.D. = 1.28), compared to a pre-test mean score of $\bar{X} = 17.22$ (S.D. = 1.69). This improvement is significant at the 0.01 level.

7.6 Test Difficulty

In the area of test difficulty, statistical tools like the P-value were employed during the measurement and analysis phase to gauge the challenge level of each test question, and subsequent adjustments were made to ensure the test was appropriately calibrated for the intended audience. A P-value of 0.20-0.80 would be considered appropriate.

Interpretation:

Low P-Value (<0.20): The item is very difficult.

Moderate P-Value (0.20–0.80): The item has moderate difficulty.

High P-value (>0.80): The item is easy.

Based on the tryout group's assessment, the P-values for the 30 test items ranged from 0.20 to 0.80, with an average P-value of 0.5. The results show that the test difficulty is as expected and is suitable to be applied to research.

7.7 Reliability Check

All items in both the pre-test and post-test underwent a sample population test involving 51 students. These students were in the first semester of their third year at Guangxi University of Science and Technology in Guangxi Province, China. The items that failed to elicit clear understanding and targeted critical thinking were reworded. The internal consistency reliability was estimated for the pre-and post-test questions using Cronbach's alpha coefficient. If the instrument, which included 30 items, achieved a Cronbach's alpha of more than 0.70 ($\text{Alpha} > 0.70$), it was generally considered acceptable for research purposes.

Stage 4: Evaluating students' satisfaction towards learning and enhancing the critical thinking of university students by case method.

1. Design of Evaluation

The evaluation of an instructional model's development served to monitor the progress of efforts aimed at achieving the desired goals. This stage functions as a validation of progress rather than as an assessment or judgment of outcomes. The objective is to ensure that changes are occurring as intended, that enhancements are directional, and that the results align with the expectations set forth by the enhancement design.

2. Implementation of Evaluator

A questionnaire on student satisfaction was distributed at the end of the course.

2.1 Student Satisfaction Questionnaires

A Student satisfaction Questionnaire of their experiences in a course on enhancing critical thinking was conducted by the researcher. It was designed to

investigate how students experienced in using instructional model on case method to enhance their critical thinking. The Questionnaire was composed of 8 main sections with a total of 18 items. The students were asked to rate their personal perceptions using a Likert rating scale ranging from 1-5, starting from strongly disagree to strongly agree.

2.2 Validity Check

The validity of the student perception questionnaire was verified using the Index of Congruence (IOC). All questions for the questionnaire were academically reviewed by 5 experts/academic advisors/professionals whose backgrounds are related to curriculum and instruction and who have at least 5 years of experience in teaching critical thinking or being involved in critical thinking tests. Each item was individually examined and only the items that were approved by the academic advisors/experts/professionals were selected as survey questions. Other suggestions including rewarding some items were revised and reordered based on the suggestions.

2. Data collection

Regarding the Satisfaction Questionnaire, data were collected from all students who participated in the course.

2.4 Data Analysis

Descriptive statistics were used.

2.5 Analysis of Student Satisfaction

To evaluate students' satisfaction with the instructional model aimed at enhancing critical thinking. The analysis followed interpretive criteria provided by Rattana Buosonte (2019) to assess satisfaction levels regarding the learning process under the developed model. According to Buosonte's criteria, the mean scores were interpreted as follows:

Satisfaction questionnaire using a 5-level Likert scale

4.50 - 5.00: shows the highest level of satisfaction

3.50 - 4.49: shows a high level of satisfaction

2.50 - 3.49: shows medium level of satisfaction

1.50 - 2.49: shows a low level of satisfaction

1.0 - 1.49: shows the lowest level of satisfaction



CHAPTER VI

RESULTS OF DATA ANALYSIS

This study attempted to develop an instructional model based on the case method to enhance university students' critical thinking. This chapter presents the results from data analysis that addresses the four main objectives of this research which were represented as follows:

The results were presented according to the research objectives as follows:

1. 1. To study how the Case Method can be used in an instructional model to enhance critical thinking.

2. To develop and assess the quality of an instructional model based on the case method to enhance the university students' critical thinking.

3. To implement and study the results of the university students' critical thinking after learning with the instructional model based on the case method to enhance the university students' critical thinking as follows:

3.1 To study students' critical thinking before and after studying with the developed instructional model.

3.2 To compare students' critical thinking before and after learning with instructional model based on the case method to enhance university students' critical thinking.

4. To evaluate the students' satisfaction with an instructional model based on the case method to enhance university students' critical thinking.

1. The result of studying the use of the Case Method in an instructional model demonstrates its effectiveness in enhancing critical thinking.

The results of studying the most effective methods for operationalizing the assessment of critical thinking and identifying the instructional model based on the case method that best enhances critical thinking in ideological and political course are presented as follows:

The results of the experts' interview on how the case method is implemented to enhance students' critical thinking.

The presentation of expert interview results on how the case method is implemented to enhance students' critical thinking considered the following aspects: principles and important features of the case method, the role of students and lectures in the case method learning process, and the case method learning activities as follows:

Table 15 The Results of the Experts' Interview on How Case Method Approaches are Implemented to Enhance Students' Critical Thinking

Issues studied	Results and evidence
Case method principles and important features	<p>Based on the principles and important features of the instructional model for enhancing critical thinking, the following information was revealed:</p> <ul style="list-style-type: none"> -The case method should emphasize real-world engagement to develop students' critical thinking. The case method involves exploring authentic, challenging, and open-ended cases to stimulate deep analysis and problem-solving. -The case method incorporates steps such as content explanation, case presentation, group discussion, synthesis and reflection, and assessment and feedback. <p>Expert: "Critical thinking activities should immerse students in real-world scenarios where they engage collaboratively, analyze diverse viewpoints, and refine their thinking processes through structured reflection and feedback."</p>
Role of learners and lecture in case method learning process	<p>In the case method, both the lecturer and the student play important roles in the learning process. The lecturer explains the case material and sets clear objectives, while the students analyze the case to enhance their competence. During class, the lecture guides the discussion by</p>

Issues studied	Results and evidence
	<p>highlighting key issues, posing probing questions, and encouraging diverse viewpoints. Students engage by presenting their analyses, challenging each other's ideas, and collaboratively seeking solutions. After class, the lecture evaluates participation and provides feedback, while students reflect on the outcomes and apply their insights to future cases. This approach fosters critical thinking and creates a dynamic learning environment. Some of the responses provided by Lecturers are as follows:</p> <p style="padding-left: 40px;">Expert 1: "Lectures should focus on guiding discussions by asking strategic questions that encourage students to think critically and explore multiple perspectives. The key is to facilitate, not dominate, the conversation."</p> <p style="padding-left: 40px;">Expert 2: "Students must take an active role in case discussions, challenging each other's ideas and contributing thoughtful analysis. This collaborative engagement is essential for deepening their understanding and honing critical thinking."</p>
<p>Case method learning activities</p>	<p>A study of the case method learning activities that can be used to enhance students' critical thinking in higher education revealed that activities such as in-depth case analysis, group discussions, Socratic questioning, role-playing of decision-makers, reflective writing, and presentations based on real-world scenarios are effective in developing students' critical thinking and problem-solving skills. These activities encourage students to engage with complex issues, consider multiple perspectives, and collaboratively explore solutions, thereby enhancing their ability to analyze and make informed decisions.</p>

Table 16 The Results of Item Objective Congruent (IOC) for the Structured Interviews for Experts on How the Case Method Can Be Used to Enhance University Students' Critical Thinking

Structured Interview for Experts on how case method can be used to enhance university students' critical thinking								
Evaluated Items		Expert					IOC	Interpretation
		1	2	3	4	5		
1	What are the specific principles and features of the case method that directly contribute to the enhancement of critical thinking in university students?	1	1	1	1	1	1.00	Good
2	What should be the role of learners and lecturers, in the effective use of the case method approach in developing critical thinking?	1	1	1	1	1	1.00	Good
3	Can you list specific case method activities that are proven to be effective in strengthening critical thinking among university students?	1	1	1	1	1	1.00	Good

2. The results of developing and assessing the quality of an instructional model based on the case method to enhance university students' critical thinking.

The results of developing and assessing the quality of an instructional model based on the case method to enhance university students' critical thinking were presented as follows:

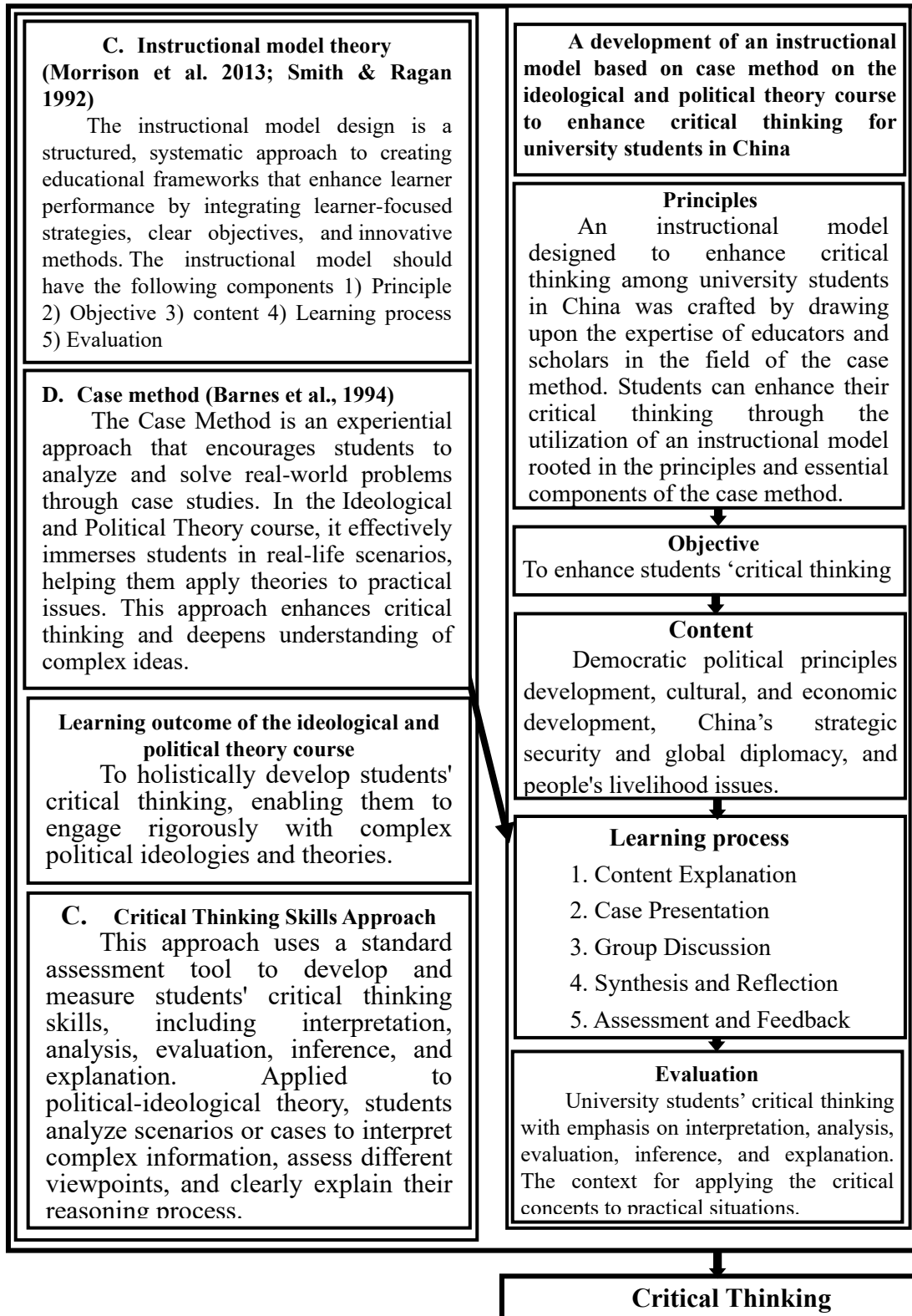
2.1. The results of developing an instructional model

The results retrieved from the case method theory were investigated, analyzed, and synthesized. The results were used to develop an instructional model. The results of an instructional model development revealed that the instructional model developed consisted of the following components: 1) principle, 2) objective, 3)

content, 4) learning process, and 5) evaluation. The results also revealed that the learning process consists of five main learning steps including 1) content explanation, 2) case presentation, 3) group discussion, 4) synthesis and reflection, and 5) assessment and feedback. The details of instructional model components are presented as follows:



Instructional Model to Enhance Critical Thinking



Rational of the model

Critical thinking stands as a pivotal skill crucial for individuals to navigate the complexities of the information age, allowing them to assess data objectively and make decisions grounded in evidence rather than personal biases or subjective opinions (Halpern, 2014). Its importance spans diverse domains of life, necessitating not only the capacity to dissect information but also to scrutinize, evaluate, and integrate it effectively to tackle multifaceted problems (Butterworth, 2005). In our contemporary world, characterized by rapid technological advancements and societal transformations, the ability to think critically and creatively has become indispensable for success (UNESCO, 1998). Employers in various industries increasingly value candidates with robust critical thinking and problem-solving abilities, often prioritizing these skills over specific undergraduate majors (Associates, 2013). Numerous reports and studies underscore the paramount significance of critical thinking in both academic pursuits and professional endeavors, emphasizing the growing demand for individuals proficient in these cognitive competencies (Paul, 2006; AAC&U, 2010). This global acknowledgment of the vital role of critical thinking underscores the urgency for educational reforms aimed at integrating comprehensive critical thinking instruction into curricula (Butler, 2012). Consistent research findings reinforce the myriad benefits of fostering critical thinking among college students, ranging from heightened academic performance to enhanced employment opportunities and more effective decision-making capabilities (Stephenson & Sadler-McKnight, 2016). Cultivating critical thinking abilities is not just desirable but imperative for personal and professional development, demanding concerted efforts and proactive measures within educational settings (Halpern, 2014). Only through the deliberate enhancement of students' critical thinking capacities can they harness knowledge to address real-world challenges with ingenuity and contribute meaningfully to the advancement of society. Research indicates that

Chinese students often encounter significant obstacles in developing critical thinking skills when compared to their peers from other nations (Xiaomei & Xiaoyuan, 2005). This challenge is underscored by studies showing that Chinese students tend to demonstrate weaker inclinations toward critical thinking and analytical prowess (Xu & H., 2001). Despite exhibiting relatively stronger systematization skills in certain contexts, Chinese students still fall short in terms of their overall aptitude for critical thinking (Xiaomei & Xiaoyuan, 2005). This disparity highlights the urgent need to prioritize the enhancement of critical thinking abilities among Chinese students, particularly considering the indispensable role such skills play in academic and professional spheres globally. As education becomes increasingly interconnected and competitive on a global scale, addressing these deficiencies becomes paramount to ensuring that Chinese students can effectively navigate the complexities of today's world and contribute meaningfully to society.

The challenges faced by Chinese students in developing critical thinking skills are intricate and deeply rooted in a myriad of factors, spanning cultural and educational influences (Xu & H., 2001). Traditional educational methodologies prevalent in China have long prioritized rote memorization over the cultivation of critical thinking abilities, thereby impeding students' capacity to engage in effective analysis, evaluation, and problem-solving (Fan & See, 2022). Consequently, Chinese students often encounter hurdles across various cognitive domains, including analysis, evaluation, inference, interpretation, and problem-solving (Fan & See, 2022). Overcoming these obstacles necessitates a fundamental shift towards more progressive instructional approaches that actively nurture critical thinking skills and foster a culture of independent thought (China, 2021). Initiatives aimed at enhancing innovative training methodologies and instilling a mindset conducive to critical inquiry are indispensable in equipping Chinese students with the competencies required to thrive in today's fiercely competitive global milieu. Through concerted

efforts from educational institutions and policymakers, Chinese students can be empowered to navigate the complexities of the modern world with confidence and efficacy.

2.1.1 Principle

An instructional model designed to enhance critical thinking among university students in China was crafted by drawing upon the expertise of educators and scholars in the field of the case method. Students can enhance their critical thinking through the utilization of an instructional model rooted in the principles and essential components of the case method. The principles are as follows:

Case Method Theory: The case method cultivates critical thinking by immersing students in real-world problems, fostering active engagement and collaboration, promoting consideration of diverse perspectives, and encouraging reflective analysis and problem-solving. Through these principles, students develop the ability to think critically, analyze complex issues, and make informed decisions in their academic and professional pursuits.

Effective enhancement of students' critical thinking through case method should focus on the utilization of authentic or real-world causes open-ended questions or situations, framing, challenging, problems for students to think, fostering collaboration among students, using Socratic questioning methods to stimulate critical thinking, guiding students to explore various cases or issues, integrating theoretical framework or model in analyzing the case, promoting affection and metacognition, going opportunity for diverse perspectives and provision of timely and constructive on students critical thinking reasoning ability and contributions to case discussion.

2.1.2 Objective

The main objective of this instructional model development is to enhance critical thinking for university students in China.

2.1.3 Content

The content taken into consideration was the enhancement of critical thinking. This study considered 4 modules including:

1.3.1 Democratic political principles development

1.3.2 Cultural and economic development

1.3.3 China's strategic security and global diplomacy

1.3.4 People's livelihood issues

Table 17 Content

NO	Learning Module	Teaching Content	Hours
1	Chap.1 Democratic political principles development	Lesson 1 Theory and practice of whole-process democracy	2
2		Lesson 2 Comprehensive Rule of Law principle and path	2
3		Lesson 3 Comprehensive Strict Party Governance Effects	2
4	Chap.2 Cultural and economic development	Lesson 4 Principles and Objectives of Cultural Prosperity	2
5		Lesson 5 The development of the modern economic system	2
6		Lesson 6 Comprehensive Deepening of economic and cultural Reforms	2
7	Chap.3 China's Strategic Security and Global Diplomacy	Lesson 7 National Security Strategy	2
8		Lesson 8 Military Modernization	2
9		Lesson 9 Global Diplomacy with Chinese Characteristics	2
10	Chap.4 People's Livelihood Issues	Lesson 10 Causes of current livelihood problems in China	2
11		Lesson 11 Building a moderately prosperous society in all aspects	2
12		Lesson 12 Strengthening and Innovating Social Governance to Promote Livelihood Protection	2
Total			24

2.1.4 Learning Process

A combination informs the steps included in the Case Method of empirical research, pedagogical theory, and practical considerations. These steps aim to engage students actively in the learning process, fostering skills such as critical thinking, problem-solving, and decision-making. The Case Method often includes the following steps based on the existing body of literature and educational theories:

2.1.4.1 Content Explanation

This initial phase involves the instructor providing a foundation for the case study by explaining the relevant content, theories, or concepts that will be applied. This may include a review of the key topics covered in the course that relate to the case, an introduction to new concepts that will be necessary for understanding the case, and an overview of the real-life scenario that the case represents. To encourage deeper engagement, the instructor should pose critical questions during this phase, such as "What potential challenges or conflicts might arise from this scenario?" or "How do these theories apply to the situation presented in the case?" These questions aim to provoke students' initial thoughts and set the stage for effective case analysis by providing them with the necessary background knowledge and context. Students should read the case thoroughly, identify key facts, and understand the context and the stakeholders involved. Preparation should include researching the political background, understanding relevant political theories, and noting any potential biases or assumptions presented in the case. Instructors might provide specific questions that help students dissect the case's political implications, encouraging them to link theoretical concepts with practical scenarios they will discuss.

2.1.4.2 Case Presentation

During class, the instructor introduces the case, setting the stage for the analysis. This might involve a detailed narrative that outlines the main events,

conflicts, or dilemmas presented in the case, possibly supported by multimedia elements like charts, videos, or diagrams to make complex political scenarios more comprehensible. The presentation aims to highlight critical issues and provoke initial thoughts, preparing students for in-depth discussion by making connections between the case and relevant political theories or historical events.

2.1.4.3 Group Discussion

After the case presentation, students break into small groups to discuss their initial impressions, analyses, and interpretations of the case. The instructor should introduce a specific discussion topic aimed at enhancing critical thinking, such as "What are the potential consequences of the actions taken by the stakeholders in this case?" or "How might different political theories provide alternative solutions to the issues presented?" This collaborative environment fosters diverse viewpoints and critical engagement with the material. Students should be encouraged to challenge each other's interpretations and debate the effectiveness and implications of different political actions or decisions highlighted in the case. This process aids in deepening their understanding and application of political concepts while sharpening their critical thinking.

2.1.4.4 Synthesis and Reflection

After group discussions, students are tasked with synthesizing the information and perspectives they have gathered. To strengthen the focus on reflection, the instructor should use targeted questions to guide this process, such as "What key insights did you gain from the discussion, and how did they challenge your initial assumptions?" and "How does this case study impact your understanding of the broader political context?" Students are encouraged to consolidate their learning, articulate their conclusions, and reflect on how the case study has influenced their understanding of the subject matter. Instructors can facilitate this process by guiding students in a debriefing session, encouraging them to reflect on the critical thinking

they've developed, and discussing how the case study applies to real-world situations or future scenarios.

2.1.4.5 Assessment and Feedback

The final step involves evaluating students' understanding and critical engagement with the case and the political theories discussed. This may be done through class discussions, written assignments, or one-on-one interactions. Feedback should be constructive and detailed, highlighting strengths in students' analyses and offering clear guidance on areas for enhancement. This helps students understand how effectively they are applying critical thinking to political theories and provides them with the opportunity to refine their critical thinking further.

By following these five steps, the case method helps students critically engage with political theories, enhancing their skills in interpretation, analysis, evaluation, inference, and explanation, while providing a structured framework for learning and discussion.

The steps included in the teaching method are often a subject of scholarly debate and can vary depending on the educational setting, the subject matter, and the specific learning objectives of the course. However, the steps mentioned above are commonly cited in educational literature as best practices for implementing the case teaching method.

2.1.5 Evaluation

2.1.5.1 This evaluation is divided into two parts including:

2.1.5.1.1 Evaluation of Critical Thinking

2.1.5.1.2 Evaluation of satisfaction with learning instruction

2.1.5.2 Evaluation Tools

2.1.5.2.1 Critical Thinking Assessment Test (Pre-test and post-test)

2.1.5.2.2 Students' satisfaction questionnaire to evaluate learning instruction

2.1.5.3 Evaluation Criterion

The evaluation criterion is divided into 2 parts as follows:

2.1.5.3.1 Comparison of results between pre-test and post-test using t-test dependent.

2.1.5.3.2 Satisfaction questionnaire using a 5-level Likert scale

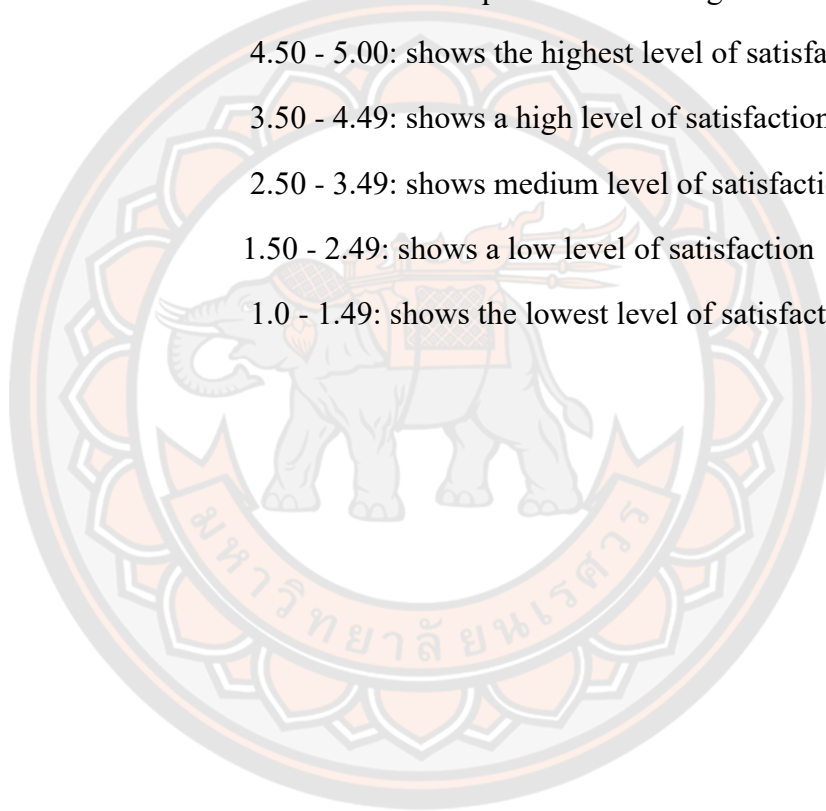
4.50 - 5.00: shows the highest level of satisfaction

3.50 - 4.49: shows a high level of satisfaction

2.50 - 3.49: shows medium level of satisfaction

1.50 - 2.49: shows a low level of satisfaction

1.0 - 1.49: shows the lowest level of satisfaction



2.2 Results of Appropriateness of Instructional Model and Instructional Model Manual

The developed instructional model and instructional model manual were carefully checked by academic advisors and evaluated by experts. The results of the evaluation were divided as follows:

2.2.1 The Results of Instructional Model Evaluation

All the components of the instructional model were checked and evaluated by the experts and the results were as follows:

Table 18 Results of Instructional Model Evaluation

Components of Instructional Model	\bar{X}	S.D.	Level of Appropriateness
Principles			
All theoretical bases related to the case method are clear and rational.	4.60	0.55	Highest
Case method theory bases support the development of critical thinking.	4.80	0.45	Highest
Case method theory bases clearly explain what is expected to be achieved.	4.80	0.45	Highest
Total	4.73	0.48	Highest
Objective			
The learning objective is related to the principles.	4.80	0.89	Highest
The learning objective is clear and reasonable.	4.80	0.89	Highest
The objective is to answer the needs of Chinese society and that of students.	4.60	0.89	Highest

Components of Instructional Model	\bar{X}	S.D.	Level of Appropriateness
The learning objective is realistic.	4.80	0.55	Highest
Total	4.55	0.81	Highest
Content			
The content is related to the principles.	4.60	0.89	Highest
The content is related to the objectives of the course.	4.40	0.55	High
Content is related to the needs of university students.	4.60	0.55	Highest
The content is consistent with the social needs.	4.40	0.55	High
Content can be used to enhance students' critical thinking.	4.20	0.84	High
The content is not too difficult for the students at this level.	4.60	0.55	Highest
The content is in line with the Chinese educational plan.	4.80	0.45	Highest
Total	4.51	0.62	Highest
Learning Process			
The learning process is related to the principles.	4.80	0.45	Highest
The learning process is in line with the objectives.	4.60	0.55	Highest
The learning process facilitates the attainment of the learning objectives.	4.60	0.55	Highest
The case method learning process is clear.	4.40	0.55	High

Components of Instructional Model	\bar{X}	S.D.	Level of Appropriateness
The case method learning process fosters University students' critical thinking.	4.60	0.55	Highest
The learning process encourages the learner's participation.	4.60	0.55	Highest
Total	4.60	0.53	Highest
Evaluation			
The assessment method is clear and measurable.	4.80	0.45	Highest
The assessment is consistent with the learning objective.	4.80	0.45	Highest
Total	4.80	0.45	Highest
Total mean score of instructional model evaluation	4.64	0.58	Highest

Table 18 represents the level of appropriateness of the developed instructional model. From the table, it is revealed that all components of an instructional model were generally at the highest level of appropriateness (\bar{X} = 4.64, S.D.= 0.58). Taking each component into consideration, it was revealed that the principle (\bar{X} = 4.73, S.D.= 0.48), objective (\bar{X} = 4.55, S.D.= 0.81), content (\bar{X} = 4.51, S.D.= 0.62), learning process (\bar{X} = 4.60, S.D.= 0.53), and evaluation (\bar{X} = 4.80, S.D.= 0.45) were all at the highest level of appropriateness.

In the second part of the evaluation, the experts commented and made suggestions on the developed instructional model based on the case method to enhance students' critical thinking. All experts said that all instructional model components were clearly explained, interrelated, and easy to understand. However,

the experts recommended pilot testing of the instructional model, instructional model manual, and critical thinking test before appropriate implementation. According to the experts' suggestion, revise the wording of "contend" to highlight the connection between the content and critical thinking.

2.2.2 The Results of Instructional Model Manual Evaluation

The instructional model manual was critically checked and evaluated by experts. The results of the evaluation are represented in the table below as follows:

Table 19 Results of Instructional Model Manual Evaluation

Components of Instructional Model Manual	\bar{X}	S.D.	Level of Appropriateness
The introduction to the instructional model manual is clear.	4.40	0.89	High
The instructional model directions are well understood.	4.60	0.89	Highest
The objective of the instructional model manual is clear and consistent with the needs of students.	4.60	0.89	Highest
The introduction of using an instructional model is applicable.	4.40	0.89	High
The learning organization is well organized and interrelated with each other.	4.60	0.89	Highest
The content is appropriate for students at this level.	4.60	0.55	Highest
The learning activities are related to content and real practice.	4.40	0.55	High

Components of Instructional Model Manual	\bar{X}	S.D.	Level of Appropriateness
The learning materials are related to the content.	4.60	0.55	Highest
The lecturer's role is articulated and easy to implement.	4.20	0.84	High
The student's role is articulated and easy to implement.	4.40	0.89	High
The timeframe is applicable for both the lesson and practical activities.	4.80	0.45	Highest
Total	4.51	0.75	Highest
Lesson Plan			
Specification of components of the lesson plans			
All the components of the lesson plans are completely specified.	4.60	0.55	Highest
All the components of the lesson plans are appropriately arranged.	4.60	0.55	Highest
Conformity of the components of the lesson plans.	4.80	0.45	Highest
Total	4.67	0.51	Highest
Appropriateness and completeness of the components of the lesson plans			
Topic: The topics are appropriate.	4.80	0.45	Highest
Chapter: The chapter is appropriate.	4.80	0.45	Highest
Duration: The time allocated for teaching and learning is appropriate.	4.80	0.45	Highest
Objectives: The objectives of the lesson plans are clear and related to the objectives of the	4.80	0.45	Highest

Components of Instructional Model Manual	\bar{X}	S.D.	Level of Appropriateness
instructional model.			
The objectives are feasible.			
Total	4.80	0.45	Highest
Content			
The content ties in with the objectives of the lesson and the instructional model.	4.60	0.55	Highest
The content is suitable for students at this level.	4.60	0.55	Highest
Total	4.60	0.55	Highest
Learning Instruction / Activities			
All activities identified at each step are concise and can be implemented easily.	4.40	0.89	High
The procedures and activities are appropriately organized for effective lesson implementation.	4.40	0.89	High
The arrangement of teaching and learning at each step conforms with the development of critical thinking.	4.20	0.84	High
Total	4.33	0.88	High
Instructional materials			
The methods of assessment are related to the objectives of the lessons.	4.20	0.84	High
The instruments of assessment are concise and are used easily.	4.40	0.55	High
Total	4.30	0.69	High
Evaluation			

Components of Instructional Model Manual	\bar{X}	S.D.	Level of Appropriateness
The instruments of evaluation are concise and are used easily.	4.80	0.45	Highest
The evaluation is related to the objectives of the instructional model.	4.80	0.45	High
The model of evaluation is clear and related to the content.	4.80	0.45	Highest
Total	4.80	0.45	Highest
Use of language			
The language used in the lesson plan is appropriate and easy to understand.	4.60	0.55	Highest
Lesson plan total	4.61	0.57	Highest
Instructional model manual Total	4.60	0.59	Highest

Table 19 above reveals the results and level of appropriateness of instructional model manual components. The results revealed that the instructional model manual was at the highest level of appropriateness (\bar{X} = 4.60, S.D.= 0.59). Considering each element of the instructional model manual, the results revealed that the introduction to the instructional model manual (\bar{X} = 4.40, S.D.= 0.89), instructional model directions (\bar{X} = 4.60, S.D.= 0.89), the objective of the instructional model manual (\bar{X} = 4.60, S.D.= 0.89), the introduction of using an instructional model (\bar{X} = 4.40, S.D.= 0.89), organization of the learning procedure (\bar{X} = 4.60, S.D.= 0.89), the content (\bar{X} = 4.60, S.D.= 0.55), learning activities (\bar{X} = 4.40, S.D.= 0.55), learning materials (\bar{X} = 4.60, S.D.= 0.55), the Lecturer's role (\bar{X} = 4.20, S.D.= 0.84), the student's role (\bar{X} = 4.40, S.D.= 0.89), the timeframe (\bar{X} = 4.80, S.D.= 0.45) and the lesson plans (\bar{X} = 4.61, S.D.= 0.57) were all at the highest level of appropriateness

with an interpretation that all the components of the instructional model manual were highly appropriate and applicable.

Based on section two of the evaluation of the instructional model manual which required the experts to write comments and suggestions, the experts commented that the objective of the instructional model manual, learning activities, and its relations with the content, the duration of each lesson, instructional materials, assessment and evaluation, and the lesson plans were all clearly explained and easy to understand and follow. However, the experts suggested that the instructional model manual and lesson plans be pilot-tested before implementation. According to the experts' suggestion, revise the introduction to the instructional model manual and the introduction of using an instructional model to highlight their connection to critical thinking more clearly.

2.2.3 Results of the Instructional Model Pilot Study and the Effectiveness of the Instructional Model

The results from trying out an instructional model based on the case method to enhance students' critical thinking revealed that all lesson plans, content, learning instruction and learning activities, instructional materials, and timeframe were highly appropriate for implementation as all the students were interested in doing all the activities. However, some problems were encountered during the pilot study, such as students' inability to understand certain cases and their fear of presenting in public. All the issues encountered were handled before proper implementation.

After conducting the test difficulty analysis, the P-values for the 30 test items ranged from 0.20 to 0.80, with an average P-value of 0.50. The results show that the test difficulty is as expected and is suitable to be applied to research (Appendix C).

2.2.4. The result of studying critical thinking before and after studying with the developed instructional model.

Table 20 The Results of the Effectiveness of an Instructional Model Based on the Case Method to Enhance Students' Critical Thinking

Assessment Elements	n	Total score	Total pretest score	Total post-test score	Effective Index (E.I)	Interpretation
Interpretation	20	10	48	88	0.56	Effective
Analysis	20	10	53	93	0.60	Effective
Evaluation	20	10	52	90	0.56	Effective
Explanation	20	0	52	93	0.60	Effective
Inference	20	10	42	86	0.56	Effective
Overall	20	30	247	450	0.58	Effective

From Table 20, the results of the effectiveness of an instructional model based on the case method to enhance students' critical thinking considering five aspects namely: interpretation, analysis, evaluation, explanation, and inference from 0.56 to 0.60. The instructional model had an overall effective index of 0.58 which is higher than the appropriate value of 0.50. This means that the instructional model was effective.

3. The result of implementing the instructional model and analyzing university students' critical thinking after learning with the case method-based instructional model highlights its effectiveness in enhancing their critical thinking skills.

The developed instructional model based on the Case Method to enhance the university students' critical thinking was implemented with 51 Third-year students

from Guangxi University of Science and Technology in the first semester of the 2024 academic year.

3.1 The Results of Studying Critical Thinking Before and After Studying with the Developed Instructional Model.

Table 21 The Results of Studying Critical Thinking Before and After Studying with the Developed Instructional Model.

Critical Thinking	n	Score	Pre-test			Post-test		
			\bar{X}	S. D.	Level of ability	\bar{X}	S. D.	Level of ability
Interpretation	51	6	3.29	1.81	Satisfactory	4.71	1.24	Good
Analysis	51	6	3.75	1.68	Satisfactory	4.98	1.27	Good
Evaluation	51	6	3.57	1.69	Satisfactory	4.98	1.27	Good
Explanation	51	6	3.18	1.52	Satisfactory	4.71	1.36	Good
Inference	51	6	3.43	1.73	Satisfactory	5.04	1.26	Excellent
Overall	51	30	17.22	1.69	Satisfactory	24.41	1.28	Excellent

From Table 21 above, we can see that before learning the instructional model based on the case method, students' critical thinking ($\bar{X}=17.22$, S.D.=1.69) was at a medium level. This includes Interpretation ($\bar{X}=3.29$, S.D.=1.81), Analysis ($\bar{X}=3.75$, S.D.=1.68), Evaluation ($\bar{X}=3.57$, S.D.=1.69), Explanation ($\bar{X}=3.18$, S.D.=1.52), and Inference ($\bar{X}=3.43$, S.D.=1.73), which indicate that students have a weak ability to interpret and understand information when facing information and cannot effectively identify and interpret key information. Students also show certain limitations in analyzing problems and deconstructing complex information. In addition, students are weak in assessing the accuracy and reliability of information, cannot accurately judge the quality of information, and perform poorly in interpreting information and constructing logical reasoning.

After learning the instructional model based on the case method, students excel in critical thinking ($\bar{X}=24.41$, S.D.=1.28). This includes Interpretation ($\bar{X}=4.71$, S.D.=1.24), Analysis ($\bar{X}=4.98$, S.D.=1.27), Evaluation ($\bar{X}=4.98$, S.D.=1.27), Explanation ($\bar{X}=4.71$, S.D.=1.36), and Inference ($\bar{X}=5.04$, S.D.=1.26), indicating that students can interpret and understand key information more accurately when faced with information, and their performance in all dimensions has been significantly improved, especially in interpretation, analysis, and reasoning. Students' abilities have been greatly enhanced.

3.2. The results of comparing studying critical thinking before and after studying with the developed instructional model.

A pre-test and post-test were administered before and after instructional model implementation to study the results of students' critical thinking after learning with the instructional model based on the Case Method and the following results were revealed.

Table 22 Comparison of Critical Thinking Before and After Studying the Developed Instructional Model

Attribute	n	Full score	Pre-test		Post-test		t	p
			\bar{X}	S. D.	\bar{X}	S. D.		
Interpretation	51	6	3.29	1.81	4.71	1.24	3.32**	0.00
Analysis	51	6	3.75	1.68	4.98	1.27	2.52**	0.00
Evaluation	51	6	3.57	1.69	4.98	1.27	5.97**	0.00
Explanation	51	6	3.18	1.52	4.71	1.36	7.60**	0.00
Inference	51	6	3.43	1.73	5.04	1.26	5.14**	0.00
Overall	51	30	17.22	1.69	24.41	1.28	24.55**	0.00

**p <0.01

It can be seen from the results in Table 22 that using the instructional model based on the case method, especially after enhancing students' critical thinking in ideological and political theory courses, students' critical thinking is significantly higher at the (\bar{X} = 24.41, S.D = 1.28) than before (\bar{X} = 17.22, S.D = 1.69) at the 0.01 level.

4. The results of exploring students' satisfaction towards learning with an instructional model based on the case method to enhance students' critical thinking.

The exploration of students' satisfaction with an instructional model based on the case method to enhance students' critical thinking was done in the results of student's satisfaction with the instructional model implementation from the questionnaire.

Results of exploring students' satisfaction with the instructional model implementation

The results of exploring students' satisfaction with an instructional model are presented as follows:

Table 23 Results of Students' Satisfaction with the Instructional Model Implementation

Components of students' satisfaction	\bar{X}	S. D	Level of satisfaction
Learning process			
The learning process is clear, fun, and easy to understand.	4.75	0.52	Highest
The instructions encourage critical thinking	4.73	0.53	Highest
Group discussions are promoted, enhancing	4.76	0.51	Highest

Components of students' satisfaction	\bar{X}	S. D	Level of satisfaction
critical thinking.			
There are opportunities for critical thinking.	4.69	0.58	Highest
Total	4.73	0.54	Highest
Content			
The content is relevant and challenges my critical thinking.	4.65	0.72	Highest
The content is relevant and challenges my critical thinking.	4.65	0.72	Highest
Total	4.65	0.72	Highest
Learning activities			
Activities require the application of critical thinking.	4.75	0.56	Highest
Learning activities foster critical thinking.	4.75	0.48	Highest
Tasks are varied and intellectually critical thinking.	4.75	0.48	Highest
Total	4.75	0.51	Highest
Learning atmosphere			
The classroom environment supports open and critical discussions.	4.73	0.49	Highest
A positive classroom atmosphere enabled us to carry out our learning activities successfully.	4.69	0.58	Highest
Total	4.71	0.54	Highest
Instructional material			
Instructional materials provoke deeper analysis	4.75	0.56	Highest

Components of students' satisfaction	\bar{X}	S. D	Level of satisfaction
and interpretation.			
Total	4.75	0.56	Highest
The role of the lecture			
The lecture facilitates critical thinking through questioning and guidance.	4.71	0.58	Highest
Total	4.71	0.58	Highest
Evaluation			
Evaluation evaluates the depth of understanding and reasoning.	4.71	0.58	Highest
Feedback from evaluation contributes to improving my critical thinking.	4.76	0.51	Highest
Total	4.74	0.54	Highest
Critical thinking development			
I feel more confident in my critical thinking abilities.	4.73	0.53	Highest
My critical thinking has enhanced.	4.73	0.49	Highest
I am better at articulating my thoughts and critical thinking clearly.	4.71	0.61	Highest
Total	4.72	0.54	Highest
Total mean score Student's' satisfaction	4.72	0.56	Highest

From Table 23 above, students' satisfaction with the instructional model implementation was at the highest level (\bar{X} = 4.72, S.D.=0.56). The results revealed that students' satisfaction towards the learning process (\bar{X} = 4.73, S.D.=0.54), content (\bar{X} = 4.65, S.D.=0.72), learning activities (\bar{X} = 4.75, S.D.=0.51), learning atmosphere

(\bar{X} = 4.71, S.D.=0.54), instructional materials (\bar{X} = 4.75, S.D.=0.56), the role of the lecture (\bar{X} =4.71, S.D.=0.58), evaluation (\bar{X} =4.74, S.D.=0.54) and critical thinking development (\bar{X} = 4.72, S.D.=0.54) was at the highest level of satisfy.



CHAPTER V

DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

The development of an instructional model based on the case method to enhance university students' critical thinking was done following the steps of research and development with the following aims:

1. To study how the Case Method can be used in an instructional model to enhance critical thinking.

2. To develop and assess the quality of an instructional model based on the Case Method to enhance the university students' critical thinking.

3. To implement and study the results of the university students' critical thinking after learning with the instructional model based on the Case Method to enhance the university students' critical thinking as follows:

- 3.1 To study students' critical thinking before and after studying with the developed instructional model.

- 3.2 To compare students' critical thinking before and after learning with instructional models based on the Case Method to enhance the critical thinking of university students.

4. To evaluate the students' satisfaction with an instructional model based on the Case Method to enhance university students' critical thinking.

This chapter takes into consideration a summary of the results and the findings are presented concerning the discussions, conclusions, policy implications for educators, and recommendations for further research.

Research Results

The results of this study on an instructional model developed based on the case method to enhance university students' critical thinking are presented as follows:

1. To study how the Case Method can be used in an instructional model to enhance critical thinking.

The results of studying the case method principles and important features that can be implemented to enhance students' critical thinking from experts revealed that the case method should emphasize real-world engagement to develop students' critical thinking. The case method involves learning steps such as content explanation, case presentation, group discussion, synthesis and reflection, and assessment and feedback.

Effective enhancement of students' critical thinking through case method should focus on the utilization of authentic or real-world causes open-ended questions or situations, framing, challenging, problems for students to think, fostering collaboration among students, using Socratic questioning methods to stimulate critical thinking, guiding students to explore various cases or issues, integrating theoretical framework or model in analyzing the case, promoting affection and metacognition, going opportunity for diverse perspectives and provision of timely and constructive on students critical thinking reasoning ability and contributions to case discussion.

2. The results of an instructional model development based on the case method to enhance students' critical thinking

The results of an instructional model development based on the case method to enhance students' critical thinking are revealed as follows:

The results from the case method theory formed the foundation for an instructional model development for critical thinking instruction.

Case Method Theory: The case method cultivates critical thinking by immersing students in real-world problems, fostering active engagement and collaboration, promoting consideration of diverse perspectives, and encouraging reflective analysis and problem-solving. Through these principles, students develop the ability to think critically, analyze complex issues, and make informed decisions in their academic and professional pursuits.

The selection of the case method is guided by several key criteria to ensure it effectively enhances students' critical thinking and learning outcomes. Firstly, the case must be authentic, reflecting real-life situations with practical application value, allowing students to engage with realistic scenarios. Additionally, cases should present a level of complexity, incorporating multiple perspectives and intricate information that challenge students' analytical and reasoning abilities, promoting a deeper level of thinking. Relevance to course objectives and students' learning needs is also essential to ensure comprehension and active engagement. Moreover, a well-chosen case should be thought-provoking, guiding students to think critically, consider various perspectives, and explore multiple solutions. Lastly, the case must be practical, and easily segmented into discussion points to facilitate classroom management and in-depth student exploration, while also being feasible within the available teaching timeframe. Together, these criteria ensure that the case method effectively fosters a robust, critical learning experience.

2.1 The results of an instructional model development revealed that the developed instructional model consisted of 5 components including principle, objective, content, learning process, and evaluation.

The results from the case method theory for teaching critical thinking which laid a foundation for an instructional model development were investigated and findings were used for the development of learning instruction to enhance students' critical thinking. The learning instruction consisted of 5 learning steps as follows:

Step 1: Content Explanation: This initial phase involves the instructor providing a foundation for the case study by explaining the relevant content, theories, or concepts that will be applied. This may include a review of the key topics covered in the course that relates to the case, an introduction to new concepts that will be necessary for understanding the case, and an overview of the real-life scenario that the case represents. To encourage deeper engagement, the instructor should pose critical questions during this phase, such as "What potential challenges or conflicts might arise from this scenario?" or "How do these theories apply to the situation presented in the case?" These questions aim to provoke students' initial thoughts and set the stage for effective case analysis by providing them with the necessary background knowledge and context. Students should read the case thoroughly, identify key facts, and understand the context and the stakeholders involved. Preparation should include researching the political background, understanding relevant political theories, and noting any potential biases or assumptions presented in the case. Instructors might provide specific questions that help students dissect the case's political implications, encouraging them to link theoretical concepts with practical scenarios they will discuss.

Step 2: Case Presentation: During class, the instructor introduces the case, setting the stage for the analysis. This might involve a detailed narrative that outlines the main events, conflicts, or dilemmas presented in the case, possibly supported by multimedia elements like charts, videos, or diagrams to make complex political scenarios more comprehensible. The presentation aims to highlight critical issues and provoke initial thoughts, preparing students for in-depth discussion by making connections between the case and relevant political theories or historical events.

Step 3: Group Discussion: After the case presentation, students break into small groups to discuss their initial impressions, analyses, and interpretations of the case. The instructor should introduce a specific discussion topic aimed at enhancing

critical thinking, such as "What are the potential consequences of the actions taken by the stakeholders in this case?" or "How might different political theories provide alternative solutions to the issues presented?" This collaborative environment fosters diverse viewpoints and critical engagement with the material. Students should be encouraged to challenge each other's interpretations and debate the effectiveness and implications of different political actions or decisions highlighted in the case. This process aids in deepening their understanding and application of political concepts while sharpening their critical thinking.

Step 4: Synthesis and Reflection: After group discussions, students are tasked with synthesizing the information and perspectives they have gathered. To strengthen the focus on reflection, the instructor should use targeted questions to guide this process, such as "What key insights did you gain from the discussion, and how did they challenge your initial assumptions?" and "How does this case study impact your understanding of the broader political context?" Students are encouraged to consolidate their learning, articulate their conclusions, and reflect on how the case study has influenced their understanding of the subject matter. Instructors can facilitate this process by guiding students in a debriefing session, encouraging them to reflect on the critical thinking they've developed, and discussing how the case study applies to real-world situations or future scenarios.

Step 5: Assessment and Feedback: The final step involves evaluating students' understanding and critical engagement with the case and the political theories discussed. This may be done through class discussions, written assignments, or one-on-one interactions. Feedback should be constructive and detailed, highlighting strengths in students' analyses and offering clear guidance on areas for enhancement. This helps students understand how effectively they are applying critical thinking to political theories and provides them with the opportunity to refine their critical thinking further.

2.2 The results of the instructional model evaluation revealed that the developed instructional model based on the case method to enhance students' critical thinking was at the highest level of appropriateness (\bar{X} = 4.64, S.D.= 0.58). Taking each component into consideration, the results revealed that the principles (\bar{X} = 4.73, S.D.= 0.48), objective (\bar{X} = 4.55, S.D.= 0.81), content (\bar{X} = 4.51, S.D.= 0.62), learning process (\bar{X} = 4.60, S.D.= 0.53), and evaluation (\bar{X} = 4.80, S.D.= 0.45) were all at the highest level of appropriateness.

The results of the instructional model manual evaluation revealed that the instructional model manual was at the highest level of appropriateness (\bar{X} = 4.60, S.D.= 0.59).

Considering each element of the instructional model manual, the results revealed that the introduction to the instructional model manual (\bar{X} = 4.40, S.D.= 0.89), instructional model directions (\bar{X} = 4.60, S.D.= 0.89), the objective of the instructional model manual (\bar{X} = 4.60, S.D.= 0.89), the introduction of using an instructional model (\bar{X} = 4.40, S.D.= 0.89), organization of the learning procedure (\bar{X} = 4.60, S.D.= 0.89), the content (\bar{X} = 4.60, S.D.= 0.55), learning activities (\bar{X} = 4.40, S.D.= 0.55), learning materials (\bar{X} = 4.60, S.D.= 0.55), the Lecturer's role (\bar{X} = 4.20, S.D.= 0.84), the student's role (\bar{X} = 4.40, S.D.= 0.89), the timeframe (\bar{X} = 4.80, S.D.= 0.45) and the lesson plans (\bar{X} =4.61, S.D.=0.57) were all at the highest level of appropriateness with an interpretation that all the components of the instructional model manual were highly appropriate and applicable.

The instructional model manual described general information on how to implement the instructional model based on the case method for critical thinking instruction. The main components of the instructional model manual include introduction, directions, objective, learning introduction, organization of the learning procedure, content, learning activities, learning materials, the Lecturer's role, the student's role, timeframe, and lesson plans. All these components contain detailed

information on how the instructor can implement the instructional model to ensure the effective enhancement of students' critical thinking. Lesson plans were used for this study with a total of 3 hours per week (2 sessions per week).

2.3 The results of the pilot study following the instructional model learning procedures to study the effectiveness of the instructional model revealed that an instructional model based on the case method to enhance students' critical thinking considering five aspects namely: interpretation, analysis, evaluation, explanation, and inference from 0.56 to 0.60. The instructional model had an overall effective index of 0.58 which is higher than the appropriate value of 0.50. Thus, meaning that the instructional model was effective.

3. Results of instructional model implementation and study of results of student's critical thinking

The results of instructional model implementation revealed that students' critical thinking after instructional model implementation was significantly higher than before at 0.01 level. Students after an instructional model implementation could use interpretation, analysis, evaluation, explanation, and inference better than before. All critical thinking elements in general were enhanced as they could think more critically.

4. Results of exploring students' satisfaction towards learning with an instructional model based on the case method to enhance students' critical thinking.

The results of exploring students' satisfaction with the instructional model learning process revealed that students' satisfaction was at the highest level ($\bar{X}= 4.72$, S.D.= 0.56). The results of exploring students' satisfaction levels revealed that the learning process ($\bar{X}=4.73$, S.D.=0.54), content ($\bar{X}=4.65$, S.D.= 0.72), learning activities ($\bar{X}=4.75$, S.D.=0.51), learning atmosphere ($\bar{X}=4.71$, S.D.=0.54), instructional materials ($\bar{X}= 4.75$, S.D.= 0.56), the role of lecture ($\bar{X}= 4.71$, S.D.= 0.58),

evaluation ($\bar{X} = 4.74$, S.D.= 0.54) and critical thinking development ($\bar{X}=4.72$, S.D.= 0.56) were all at the highest satisfaction level.

Discussion of Research Results

Regarding this research which had as its objective to develop an instructional model based on the case method to enhance students' critical thinking in Chinese colleges, the researcher found the following useful aspects to be discussed: 1) results of studying how the case method is implemented to enhance students' critical thinking, 2) results of instructional model development and quality assessment, 3) results of instructional model implementation and study of results of students' critical thinking and 4) results of exploring students' satisfaction towards instructional model implementation. These aspects were discussed as follows:

1. The results of studying the most effective methods for operationalizing critical thinking assessment and identifying the instructional model based on the case method that best enhances critical thinking in ideological and political course.

The results of studying how the case method can be implemented to enhance students' critical thinking from experts

The results of studying how the case method could be implemented to enhance students' critical thinking from experts revealed that activities such as in-depth case analysis, group discussions, Socratic questioning, role-playing of decision-makers, reflective writing, and presentations based on real-world scenarios can be used to enhance students' critical thinking. It also revealed that these activities encourage students to engage with complex issues, consider multiple perspectives, and collaboratively explore solutions, thereby enhancing their ability to think more critically.

The results of studying important elements of the case method revealed that the case method should emphasize real-world engagement to develop students'

critical thinking. The Case method involves exploring authentic, challenging, and open-ended cases to stimulate deep analysis and problem-solving. The Lecturer should guide the discussion by highlighting key issues, posing probing questions, encouraging diverse viewpoints, evaluating participation, and providing feedback.

2. The results of an instructional model development based on the case method to enhance students' critical thinking

2.1 Results of Instructional Model Development

The results of the instructional model development revealed that an instructional model based on the case method for critical thinking enhancement consisted of five components including principle, objective, content, learning process, and evaluation. The results from the development of the instructional model are consistent with previous research that emphasizes the importance of clear and systematic instructional designs in enhancing critical thinking. For example, Alsaleh (2020) highlights how structured models, such as the one developed in this study, encourage deep engagement with complex cognitive tasks.

The learning instruction consisted of 5 learning steps including content explanation, case presentation, group discussion, synthesis and reflection, and assessment and feedback. This successfully aligns with frameworks proposed by Arend (2020), which support the notion that well-structured models can enhance the learner's ability to bridge theory and practice.

2.2 Results of the Appropriateness of the Instructional Model

The results of an instructional model evaluation revealed that the developed instructional model was at the highest level of appropriateness (\bar{X} = 4.64, S.D = 0.58). The appropriateness might have resulted from the following reasons:

The researcher at the beginning studied how the case method could be implemented to enhance university students' critical thinking through interviews with experts. During the interview stage, principles and important features of the case

method, the roles of learners and instructors, and learning activities were obtained which were all used for the design and development of the instructional model. Related theories and approaches were critically analyzed for instructional model development. Since the principles and important features of the case method were studied before instructional model development, the researcher got useful information that was used for the design and development of an instructional model for critical thinking instruction. This therefore made the instructional model to me at the highest level of appropriateness. The instructional model manual and lesson plans were equally designed. These documents were checked and corrected by the academic advisors and experts making them more appropriate. The instructional model, instructional model manual, and other related documents were submitted to five experts (experts in the field of curriculum and instruction, research and development, measurement and evaluation, and Ideological and Political Theory) to evaluate the appropriateness of the instructional model and related documents. The results of an instructional model evaluation revealed that the instructional model was at the highest level of appropriateness.

The results from the second part of the evaluation form which required experts to comment and give suggestions revealed that all components of an instructional model were clearly explained and easy to understand and follow. Nevertheless, all experts suggested that the instructional model and instructional model manual should be pilot-tested before proper implementation.

Apart from the instructional model evaluation by experts, the instructional model and instructional model manual were all pilot-tested with a class of 20 Third-year students for 4 weeks to check the effectiveness of the instructional model considering content, time, activities, instructional materials, and learning process. During this pilot study, some modifications and adjustments were made. This

made the instructional model and instructional model manual more appropriate and effective.

From the results of evaluation by experts and pilot study to determine the level of appropriateness and effectiveness of the instructional model, it was therefore concluded that the instructional model based on the case method for critical thinking instruction was appropriate at the highest level and qualified to be used for critical thinking enhancement. The results of this instructional model evaluation were consistent with Robert M. Gagne (2004) and Smith (1992) who stated that instructional models describe the process of specifying and producing environmental situations that cause the learners to interact in such a way that specific change occurs in behavior. Instructional models should be developed from theories and or approaches. As supported by research from Abrami et al. (2015), effective instructional models that receive high evaluations from experts often exhibit high reliability and applicability, enabling students to develop a deep understanding of concepts through structured learning processes.

From the instruction model evaluation by experts and pilot study, the results of an instructional model development based on the case method to enhance students' critical thinking found that the instructional model was appropriate, suitable, and effective and can be implemented for critical thinking instruction.

3. Results of instructional model implementation and study of results of student's critical thinking

3.1 Structured Instructional Stages and Model Design

The effectiveness of the instructional model in fostering critical thinking, particularly in interpretation, analysis, and inference, can be attributed to the systematic organization and structured stages of the learning process. The model was meticulously designed, checked by experts, and pilot-tested to ensure its appropriateness and efficacy for critical thinking development. Each stage of the

learning process—content explanation, case presentation, group discussion, synthesis and reflection, and assessment and feedback—was intentionally crafted to immerse students in authentic, challenging scenarios. This structured approach required students to collaboratively analyze cases, consider diverse perspectives, and refine their thought processes through reflection and instructor feedback.

The emphasis on engaging students in real-world problems aligned with the principles of case-based learning, encouraging students to interact with complex information and refine their understanding through continuous practice. This model effectively provided opportunities for students to practice and present their learning tasks in groups, promoting a deeper, more practical grasp of critical thinking skills.

3.2 Reasons for Differential Improvement in Critical Thinking Dimensions

This study aimed to enhance critical thinking skills in university students enrolled in ideological and political theory courses by implementing a case-based instructional model. The findings revealed that students achieved statistically significant improvement in their overall critical thinking abilities across five core dimensions: interpretation, analysis, evaluation, inference, and explanation. However, the level of improvement varied among these dimensions, with "analysis" and "inference" showing the most substantial gains, while "evaluation" and "explanation" exhibited more modest progress. The following sections discuss potential reasons for these varying levels of improvement in critical thinking dimensions, supported by both instructional model characteristics and theoretical frameworks.

3.2.1 Initial Skill Level and Educational Background

Many students entered the study with limited foundational skills in certain critical thinking dimensions, particularly in "evaluation" and "explanation." China's traditional teacher-centered education system emphasizes memorization and

knowledge acquisition, which limits students' exposure to critical analysis and independent thinking practices. Consequently, students lacked prior experience in evaluating information reliability and articulating complex reasoning. This initial gap made it challenging for students to develop these skills rapidly, even within the structured framework of the case-based instructional model. Despite the intervention, students' limited background in these areas constrained the speed and extent of their improvement in "evaluation" and "explanation."

3.2.2 Scope and Emphasis of the Case Method

The case-based instructional model was highly effective in developing "analysis" and "inference" skills. By engaging students in detailed case scenarios, the model encouraged them to examine relationships, assess arguments, and draw logical conclusions. However, while the case method supports these analytical processes, it may place less direct emphasis on the skills necessary for "evaluation" and "explanation." The latter dimensions require additional abilities, such as questioning underlying assumptions, assessing source reliability, and clearly articulating reasoning. Given that the instructional model focused primarily on the interpretation and analysis of cases, its strengths were more aligned with analytical thinking, thus limiting the development of evaluation and explanation skills to a certain extent.

3.2.3 Cognitive Complexity Differences Among Dimensions

The varied cognitive demands of each critical thinking dimension may also account for the differences in improvement levels. Skills such as "analysis" and "inference" align closely with structured, logical examination, which the case-based method inherently supports. In contrast, "evaluation" requires students to independently judge information quality and credibility, while "explanation" involves effectively articulating reasoning processes. These dimensions demand higher cognitive engagement and are typically more challenging to develop within a short

timeframe, necessitating extended practice and reflection to achieve significant progress.

3.2.4 Individual Differences in Engagement and Knowledge

Students' prior knowledge, learning habits, and engagement levels varied, impacting their development across critical thinking dimensions. Some students entered the course with little prior experience in reflective or critical assessment, making tasks in "evaluation" and "explanation" especially challenging. These tasks required students to engage in clear thinking and confidently express their reasoning. Such individual differences may have limited the uniformity of improvement across all dimensions. Students with stronger backgrounds in independent thinking may have adapted to the demands of "evaluation" and "explanation" more readily, while others struggled, resulting in uneven development across the dimensions.

3.2.5 Duration of the Intervention

The instructional model was implemented over one semester, which, while effective for general critical thinking enhancement, may not have been sufficient to fully develop more complex skills such as those required for "evaluation" and "explanation." These dimensions often require prolonged exposure and repeated practice to internalize complex cognitive processes and develop high-level critical thinking. Extending the intervention period over multiple semesters could provide students with the necessary time to engage deeply with all aspects of critical thinking, allowing for more balanced improvement across dimensions.

3.3 Literature Support

The findings of this study are consistent with prior research affirming the effectiveness of case-based and collaborative learning approaches in developing critical thinking skills. For example, Abrami et al. (2015) demonstrated that collaborative and case-based learning approaches significantly enhance students' critical thinking, supporting the improvements observed in this study. Similarly,

Bezanilla et al. (2019) found that instructors tend to view case studies as highly effective tools for developing critical thinking. The alignment between this study's results and these findings reinforces the theoretical effectiveness of case-based learning in enhancing critical thinking across various dimensions.

Additional studies further substantiate these results. Sajjad (2010) conducted research with 220 undergraduate students and identified the case method as a productive approach for developing both critical thinking and problem-solving skills, highlighting its effectiveness compared to other teaching methods. Dinan (2002) also noted that case-based learning encourages students to critically evaluate situations and explore multiple possible solutions rather than simply identifying correct answers, as is often emphasized in traditional didactic teaching. These findings align with the observed improvements in "analysis" and "inference" within this study, supporting the claim that case-based learning fosters deeper cognitive engagement.

Silverman (1996) and Kaddoura (2011) similarly emphasized the positive impact of the Case Method on critical thinking, with Silverman concluding that it more effectively fosters analytical and critical skills than traditional lecture-based approaches. In case-based learning, students were given opportunities to ask important questions, consider various responses, and debate different perspectives, thereby enhancing their critical thinking abilities. Kaddoura (2011) provided empirical evidence that students in case-based learning programs performed significantly better on critical thinking assessments than those in lecture-based programs, reinforcing the model's effectiveness in a higher education context.

Camiah (1998) highlighted the limitations of didactic teaching approaches in developing creativity and critical thinking, proposing instead that student-centered educational approaches, such as case-based learning, are more effective for fostering critical thinking. This evidence supports the current study's

approach and emphasizes the value of structured, interactive learning in enhancing critical thinking across multiple dimensions.

4. Results of exploring students' satisfaction towards learning with an instructional model based on the case method to enhance students' critical thinking.

To monitor students' progress, and achievement based on the desired goals and students' satisfaction with the instructional model, an evaluation of an instructional model implementation based on the case method to enhance students' critical thinking was done. The evaluation took into consideration students' satisfaction with the learning process and procedures, content, learning activities, learning atmosphere, the role of the lectures, the role of the learners, instructional strategies, instructional materials, methods of assessment, learning duration, and critical thinking development.

The results of exploring students' satisfaction revealed that students' satisfaction was at the highest level. The high level of satisfaction might be because the learning process was organized systematically and step-by-step as designed in the instructional model procedure. Cases of real-world scenarios, a friendly learning atmosphere, and a wide variety of instructional materials consistently motivate students. The entire learning process was clear, and connected with students' real life which would facilitate the enhancement of students' critical thinking. This aligns with results by Garrison et al. (2000), who suggest that group-based learning environments are particularly effective in promoting critical thinking, as they encourage students to engage in deeper analysis, reflect on their reasoning, and evaluate different perspectives.

These results are directly consistent with Karns (2005), who emphasized the importance of aligning strategies and activities with students' preferences and perceptions. Karns conducted a study to investigate students'

perceptions of learning activities by analyzing survey responses from 227 students across 8 universities in the United States. He found that internships, class discussions, and case analyses were the learning activities that students identified as contributing the most to their learning. According to Karns, understanding students' preferences and integrating these activities into the curriculum can significantly enhance their learning experience.

Conclusion

This research spotlighted the development of an instructional model based on the case method to enhance students' Critical thinking. The result of an instructional model implementation revealed the capableness and aptitude of students' Critical thinking were enormously enhanced. Critical thinking is an essential skill for success in all areas of life. It involves the ability to analyze, evaluate, and synthesize information to make informed decisions and solve problems effectively. In today's complex and rapidly changing world, individuals are faced with a wide range of challenges and must be able to think creatively and critically to succeed. Developing critical thinking is therefore becoming increasingly important, both for personal and professional growth.

During the implementation of the instructional model, the learning process often involves case method activities, such as immersing students in real-world scenarios, engaging them in collaborative work, and analyzing different perspectives, which promotes the refinement of the student's thinking process through structured reflection and feedback. The results of this study revealed that an instructional model based on the case method for critical thinking instruction was appropriate and successful in enriching students' critical thinking. Enriching students' critical thinking means seeing them as active participants in the learning process. Learning instruction, activities, instructional materials, and learning environments enable learners to develop and nurture their critical thinking by enabling them to

interact in small groups, prepare, and present learning tasks, and receive feedback and assessment with the help of the Lecturer.

Enhancing students' critical thinking requires a combination of techniques and methods derived from the principles of the case method. This instructional model emphasizes real-world engagement, challenging open-ended questions, and collaborative problem-solving. By immersing students in real-world scenarios and promoting collaboration, educators guide students to explore different cases and problems. Incorporating theoretical frameworks and promoting metacognition are also key factors in supporting students to critically analyze complex problems. Providing timely and constructive feedback can further enhance students' reasoning skills and contributions to the discussion. Ultimately, developing students' critical thinking enables them to approach complex issues with a holistic perspective and make informed decisions that will contribute to their academic and professional success.

Recommendations from Research

From the implementation of an instructional model based on the case method to enhance students' critical thinking, the following recommendations are made:

1. Recommendations for Applying the Research Results

1.1 To effectively apply the results of this study, several strategic areas must be focused on to strengthen the implementation of the case method in the educational environment. Case selection is the most important link in the pre-class stage of the case method, which is related to the success or failure of the case method. To transform the potential advantages of case teaching into tangible teaching effects, the selection of high-quality teaching cases must be given priority. These cases must be closely related to the learning objectives of the course to ensure that students are

not only engaged in them but also encouraged to develop critical thinking through rigorous analysis and discussion.

1.2 Lecturer training is the key to the success of the case method. The case method is an interactive process between Lecturers, teaching cases, and students. The degree of understanding of the content of the teaching case by the Lecturer and the degree of mastery of the educational theoretical knowledge contained in the teaching case are the keys to connecting the Lecturer and the teaching case. The Lecturer's familiarity with the students' existing learning experience and the judgment of the student's learning needs are the keys to selecting appropriate teaching cases. Therefore, the role of lectures in case teaching is still primary.

1.3 The use of online platforms, virtual simulations, and interactive software can provide students with a more immersive and dynamic learning experience. These technologies can make the teaching content more specific and vivid and play an important role in expanding the teaching content. It can mobilize students' curiosity and interest, learn from the case experience, and transform it into their knowledge and skills.

2. Recommendations for Future Research

2.1 Focused Training on Evaluation and Explanation

To ensure balanced development across all critical thinking dimensions, future iterations of the instructional model should include targeted activities for "evaluation" and "explanation." By incorporating exercises that emphasize assessing information credibility and clearly articulating reasoning, students would gain more explicit practice in these areas. Such focused activities would help students develop evaluative judgment and expression skills alongside their analytical abilities, creating a more comprehensive skill set that encompasses all aspects of critical thinking.

2.2 Phased Skill Development

Critical thinking training could be organized into sequential stages to support a more structured growth process. The initial phase would focus on foundational skills, such as interpretation, analysis, and inference, which are essential for understanding and dissecting complex information. Subsequent stages would then shift focus toward more advanced skills, such as evaluation and explanation, which require a deeper level of cognitive engagement and practice. This phased approach would allow students to build a strong foundation in basic critical thinking skills before advancing to more complex evaluative and expressive tasks.

2.3 Extended Duration of Intervention

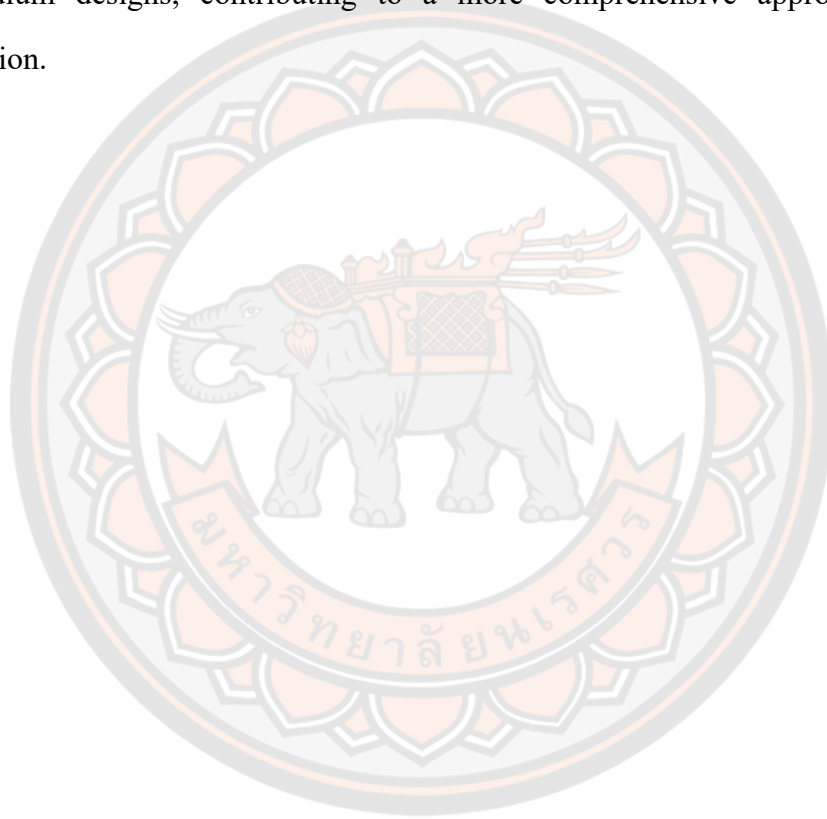
Implementing the case-based model across multiple semesters would allow students more time to internalize and develop critical thinking skills in all dimensions, especially in complex areas such as "evaluation" and "explanation." These dimensions often require sustained practice and reflection to fully internalize the cognitive processes involved. A longer intervention period would provide students with sufficient time to engage deeply with critical thinking tasks, potentially leading to more balanced improvement and long-term retention across all dimensions.

2.4 Incorporating Reflective Practice

Encouraging students to engage in reflective practice by assessing and reflecting on their thinking processes can promote self-awareness and foster skill development, particularly in more cognitively demanding areas. Reflective practice is especially beneficial for "evaluation" and "explanation," as it encourages students to examine their reasoning critically and articulate it more clearly. By incorporating regular reflective exercises, students can consolidate their understanding, refine their judgment, and improve their ability to express complex ideas, enhancing their overall critical thinking abilities.

In summary, this study demonstrates that a systematically designed case-based instructional model can significantly enhance critical thinking skills,

particularly in analysis and inference, within ideological and political theory courses. However, specific adjustments to teaching strategies, such as phased skill development, extended intervention duration, and the integration of reflective practices, are recommended to promote more balanced growth across all critical thinking dimensions. These insights not only validate the study's findings but also provide practical guidance for optimizing critical thinking instruction in future curriculum designs, contributing to a more comprehensive approach in higher education.



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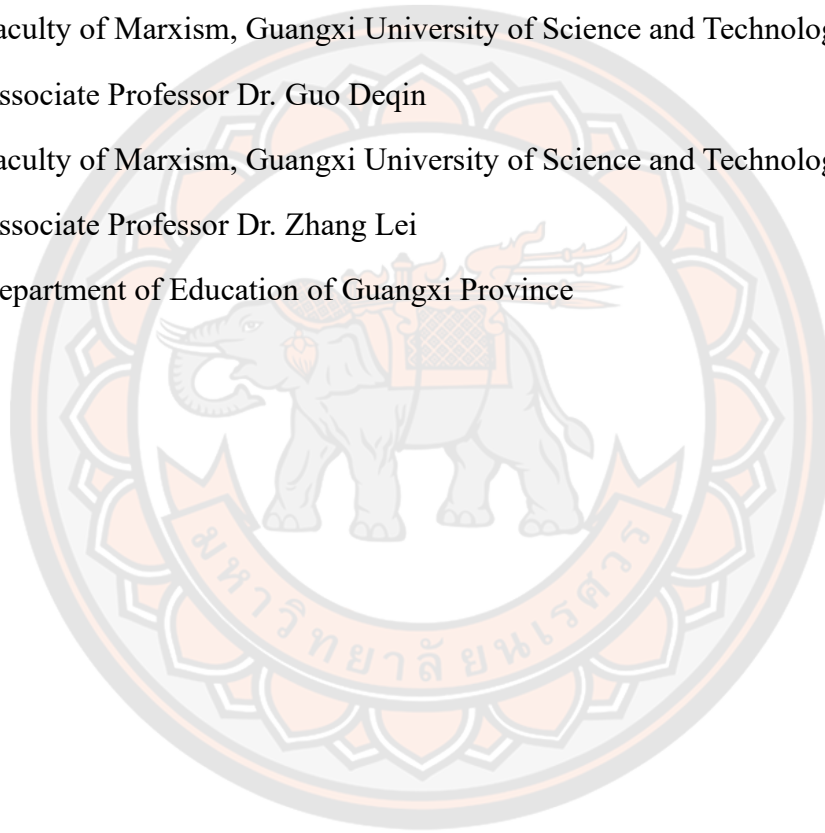
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APPENDIX A**LIST OF INTERVIEWED EXPERTS**

- 1 Associate Professor Dr. Tang Fangyun
Faculty of Marxism, Guangxi University of Science and Technology
- 2 Associate Professor Dr. Song Yanjin
Faculty of Marxism, Guangxi University of Science and Technology
- 3 Associate Professor Dr. Guo Deqin
Faculty of Marxism, Guangxi University of Science and Technology
- 4 Associate Professor Dr. Zhang Lei
Department of Education of Guangxi Province



LIST OF EXPERTS FOR RESEARCH TOOLS EVALUATION

- 1 Assistant Professor Dr. Jakkrit Jantakoon
Faculty of Education, Naresuan University
- 2 Assistant Professor Dr. Angkana Onthanee
Faculty of Education, Naresuan University
- 3 Professor Dr. Zhao Huili
Faculty of Marxism, Guangxi University of Science and Technology
- 4 Associate Professor Dr. Tang Fangyun
Faculty of Marxism, Guangxi University of Science and Technology
- 5 Associate Professor Dr. Zheng Minghuai
Office of Academic Affairs, Guangxi University of Science and Technology



APPENDIX B

Structured Interview for Experts: How case method can be used to enhance university students' critical thinking

The interview concentrated on getting theoretical information on case method principles and important features, the role of learners and lecturers in the case method process, and case method activities learning instruction that can be used in enhancing university students' critical thinking. The interview guide for experts, which consists of discussions about instruments as follows:

1. What are the specific principles and features of the case method that directly contribute to the enhancement of critical thinking skills in university students?
2. What should be the role of learners and lecturers, in the effective use of the case method approach in developing critical thinking?
3. What activities can be used to enhance critical thinking among university students?

Item Objective Congruent (IOC) for the Structured Interviews for Experts on how case method can be used to enhance university students' critical thinking

Structured Interview for Experts on how case method can be used to enhance university students' critical thinking								
Evaluated Items		Expert					IOC	Interpretation
		1	2	3	4	5		
1	What are the specific principles and features of the case method that directly contribute to the enhancement of critical thinking in university students?	1	1	1	1	1	1.00	Good
2	What should be the role of learners and lecturers, in the effective use of the case method approach in developing critical thinking?	1	1	1	1	1	1.00	Good
3	What activities can be used to enhance critical thinking among university students?	1	1	1	1	1	1.00	Good

Interview form for Experts on how case method can be used to enhance university students' critical thinking

Issues studied	Results and evidence
Principles and Features of the Case Method	
Role of learners and lecturers in case method	Learners
learning process	lectures
Effective Case Method Activities	

APPENDIX C

Instructional Model Evaluation Form

Instructions for the Experts

This evaluation form is designed for the experts to evaluate the consistency and appropriateness of the instructional model. The areas of evaluation are as follows:

1. Principle
2. Objectives
3. Content
4. Learning process
5. Evaluating

The evaluation form consists of two parts: part one is based on 5-level rating scale criteria (1-5). The items whose scores are equal to or higher than 0.34 are appropriate and are reserved and those with a score of less than 0.34 are changed, adjusted, or reworded based on the experts' comments. Part two is open-ended which allows the experts to give some comments and suggestions. In part one, please tick (✓) the evaluated item in the table to identify the status of the components of the instructional model

5 = Most Appropriate

4 = More Appropriate

3 = Moderately Appropriate

2 = Less Appropriate

1 = Least Appropriate

In part two, more comments and suggestions are required.

Part one:

Please tick (√) the evaluated item in the table identifying the consistency and appropriateness of the components of an instructional model.

Components of Instructional Model Manual	Level of Appropriateness				
	5	4	3	2	1
Principle					
All theoretical bases related to the case method are clear and rational.					
Case method theory bases support the development of critical thinking.					
Case method theory bases clearly explain what is expected to be achieved.					
Objective					
The learning objective is related to the principles.					
The learning objective is clear and reasonable.					
The objective is to answer the needs of Chinese society and that of students.					
The learning objective is realistic.					
content					
The content is related to the principles.					
The content is related to the objectives of the course.					
Content is related to the needs of university students.					
The content is consistent with the social needs.					
Content can be used to enhance students' critical thinking.					
The content is not too difficult for the students at this level.					

Components of Instructional Model Manual	Level of Appropriateness				
	5	4	3	2	1
The content is in line with the Chinese educational plan.					
Learning process					
The learning process is related to the principles.					
The learning process is in line with the objectives.					
The learning process facilitates the attainment of the learning objectives.					
The case method learning process is clear.					
The case method learning process fosters University students' critical thinking.					
The learning process encourages the learner's participation.					
Evaluation					
The evaluation method is clear and measurable.					
The evaluation is consistent with the learning objective.					

Thank you

Expert Evaluation Rubric for Case Method Instructional Model

Components of Instructional Model	Experts				
	1	2	3	4	5
Principles					
All theoretical bases related to the case method are clear and rational.	4	4	5	5	5
Case method theory bases support the development of critical thinking.	4	5	5	5	5
Case method theory bases clearly explain what is expected to be achieved.	4	5	5	5	5
Objective					
The learning objective is related to the principles.	3	5	5	5	5
The learning objective is clear and reasonable.	3	5	5	5	5
The objective is to answer the needs of Chinese society and that of students.	3	5	5	5	4
The learning objective is realistic.	4	5	5	4	5
Content					
The content is related to the principles.	3	5	5	5	5
The content is related to the objectives of the course.	4	4	4	5	5
Content is related to the needs of university students.	4	5	5	4	5
The content is consistent with the social needs.	4	4	5	5	4
Content can be used to enhance students' critical thinking.	3	4	5	4	5
The content is not too difficult for the students at this level.	4	4	5	5	5
The content is in line with the Chinese educational plan.	4	5	5	5	5
Learning Process					

Components of Instructional Model	Experts				
	1	2	3	4	5
The learning process is related to the principles.	4	5	5	5	5
The learning process is in line with the objectives.	4	4	5	5	5
The learning process facilitates the attainment of the learning objectives	4	4	5	5	5
The case method learning process is clear.	4	4	5	5	4
The case method learning process fosters University students' critical thinking.	4	4	5	5	5
The learning process encourages the learner's participation.	4	4	5	5	5
Evaluation					
The evaluation method is clear and measurable.	4	5	5	5	5
The evaluation is consistent with the learning objective.	4	5	5	5	5

This evaluation form is designed for experts to evaluate the appropriateness and completeness of the instructional model manual and lesson plan based on the case method to enhance students' critical thinking. There are seven areas for evaluation

The evaluation form. There are two main sections on the evaluation form. Section one consists of a five-point Likert scale and section two is open-ended for the experts to evaluate the instructional model manual and lesson plan by making comments and suggestions based on the research manual components. In section one, tick (✓) the items in the table to identify the level of appropriateness and completeness of the instructional model manual and lesson plan with the following criteria:

5 = most appropriate

4 = More appropriate

3 = Moderately appropriate

2 = Less appropriate and needs modifications

1 = Least appropriate and needs modifications

In section two, more comments and suggestions are required

Section one:

Components of Instructional Model Manual	Level of Appropriateness				
	5	4	3	2	1
The introduction to the instructional model manual is clear.					
The instructional model directions are well understood.					
The objective of the instructional model manual is clear and consistent with the needs of students.					
The introduction of using an instructional model is applicable.					
The learning organization is well organized and interrelated with each other.					
The content is appropriate for students at this level.					
The learning activities are related to content and real practice.					
The learning materials are related to the content.					
The Lecturer's role is articulated and easy to implement.					
The student's role is articulated and easy to implement.					
The timeframe is applicable for both the lesson and practical activities.					
Lesson Plan					
Specification of components of the lesson plans					
All the components of the lesson plans are completely specified.					
All the components of the lesson plans are appropriately arranged.					

Components of Instructional Model Manual	Level of Appropriateness				
	5	4	3	2	1
Conformity of the components of the lesson plans.					
Appropriateness and completeness of the components of the lesson plans					
Topic: The topics are appropriate.					
Chapter: The chapter is appropriate.					
Duration: The time allocated for teaching and learning is appropriate.					
Objectives: The objectives of the lesson plans are clear and are related to the objectives of the instructional model. The objectives are feasible.					
Content					
The selected content ties in with the objectives of the lesson and the objectives of the instructional model.					
The content is suitable for students at this level.					
Learning Instruction / Activities					
All activities identified at each step are concise and can be implemented easily.					
The procedures and activities are appropriately organized for effective lesson implementation.					
The arrangement of teaching and learning at each step conforms with the development of critical thinking.					
Instructional materials					
The instructional materials are easy and convenient to prepare.					

Components of Instructional Model Manual	Level of Appropriateness				
	5	4	3	2	1
The instructional materials are related to the objective of the lessons.					
Learning Assessment					
The methods of assessment are related to the objectives of the lessons.					
The instruments of assessment are concise and are used easily.					
Evaluation					
The instruments of evaluation are concise and are used easily.					
The evaluation is related to the objectives of the instructional model.					
The model of evaluation is clear and related to the content.					
Use of language					
The language used in the lesson plan is appropriate and easy to understand.					

Section two:

Please write comments and suggestions based on the appropriateness and completeness of the instructional model manual and lesson plans based on collaborative and communicative learning approaches to enhance students' critical thinking under the following aspects:

1. Instructional model introduction

2. Directions

3. Objectives

4. Introduction

5. Learning organization

6. Content

7. Learning materials

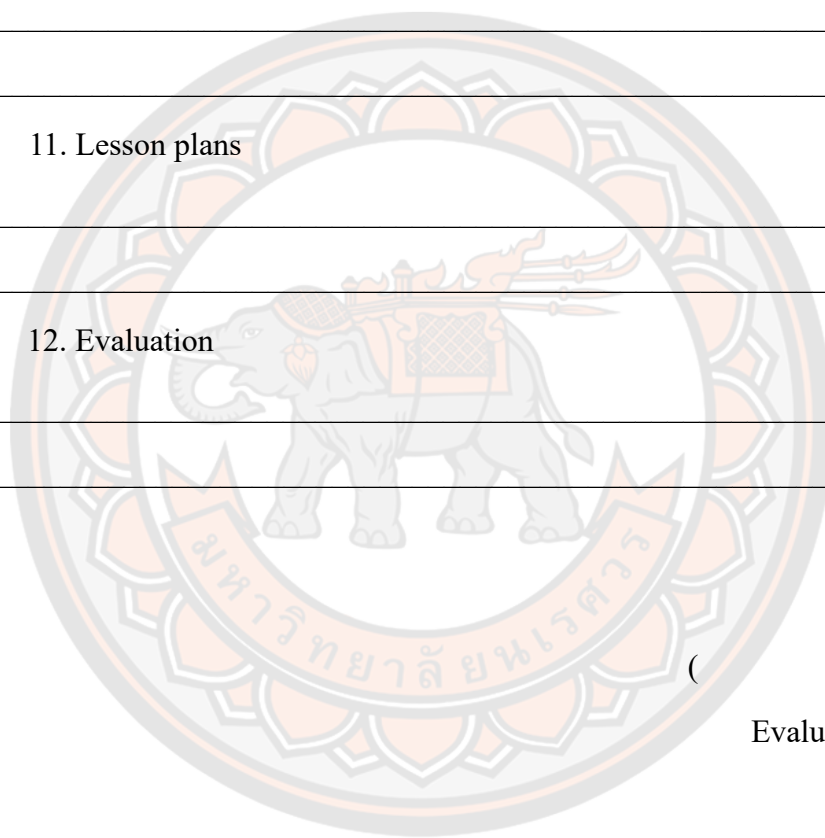
8. The lecture's role

9. The student's role

10. Timeframe

11. Lesson plans

12. Evaluation



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Evaluator

Section one:

Components of Instructional Model Manual	Level of Appropriateness				
	5	4	3	2	1
The introduction to the instructional model manual is clear.	3	5	5	4	5
The instructional model directions are well understood.	3	5	5	5	5
The objective of the instructional model manual is clear and consistent with the needs of students.	3	5	5	5	5
The introduction of using an instructional model is applicable.	3	5	4	5	5
The learning organization is well organized and interrelated with each other.	3	5	5	5	5
The content is appropriate for students at this level.	4	4	5	5	5
The learning activities are related to content and real practice.	4	4	5	5	4
The learning materials are related to the content.	4	4	5	5	5
The Lecturer's role is articulated and easy to implement.	3	4	4	5	5
The student's role is articulated and easy to implement.	3	4	5	5	5
The timeframe is applicable for both the lesson and practical activities.	4	5	5	5	5
Lesson Plan					
Specification of components of the lesson plans					
All the components of the lesson plans are completely specified.	4	5	4	5	5
All the components of the lesson plans are appropriately arranged.	4	5	5	4	5

Components of Instructional Model Manual	Level of Appropriateness				
	5	4	3	2	1
Conformity of the components of the lesson plans.	4	5	5	5	5
Appropriateness and completeness of the components of the lesson plans					
Topic: The topics are appropriate.	4	5	5	5	5
Chapter: The chapter is appropriate.	4	5	5	5	5
Duration: The time allocated for teaching and learning is appropriate.	4	5	5	5	5
Objectives: The objectives of the lesson plans are clear and are related to the objectives of the instructional model. The objectives are feasible.	4	5	5	5	5
Content					
The selected content ties in with the objectives of the lesson and the objectives of the instructional model.	4	4	5	5	5
The content is suitable for students at this level.	4	4	5	5	5
Learning Instruction / Activities					
All activities identified at each step are concise and can be implemented easily.	3	4	5	5	5
The procedures and activities are appropriately organized for effective lesson implementation.	3	4	5	5	5
The arrangement of teaching and learning at each step conforms with the development of critical thinking.	3	4	4	5	5
Instructional materials					
The instructional materials are easy and convenient to prepare.	3	4	5	4	5

Components of Instructional Model Manual	Level of Appropriateness				
	5	4	3	2	1
The instructional materials are related to the objective of the lessons.	4	4	5	5	4
Learning Assessment					
The methods of assessment are related to the objectives of the lessons.	4	5	5	5	5
The instruments of assessment are concise and are used easily.	4	5	5	5	5
Evaluation					
The instruments of evaluation are concise and are used easily.	4	5	5	5	5
The evaluation is related to the objectives of the instructional model.	4	5	5	5	5
The model of evaluation is clear and related to the content.	4	5	5	5	5
Use of language					
The language used in the lesson plan is appropriate and easy to understand.	4	4	5	5	5

An Instructional Model Manual for Enhancing University Students' Critical Thinking

1. Introduction

The instructional model to develop university students' critical thinking is based on the case method in the ideological and political theory course. The development of these skills is a challenging issue among students in China.

This instructional model manual gives a section-by-section explanation of how this instructional model is implemented. The instructional manual takes into consideration: directions, objectives, learning environment, students' role, Lecturers' role, content, instructional strategies, instructional materials, instructional procedures, evaluation, and lesson plans.

Anyone who wishes to use this instructional model based on the case method to enhance students' critical thinking is recommended to follow this instructional model manual. It is hoped that this instructional model manual will be a good guide used to enhance university students' critical thinking.

2. Directions

This instructional model manual has been developed to facilitate using an instructional model based on a case method to enhance university students' critical thinking. Therefore, any Lecturer who wishes to use this model must strictly follow the directions as explained in the manual under the following aspects: directions, objectives, learning environment, students' role, Lecturers' role, content, instructional strategies, instructional materials, instructional procedures, evaluation, and lesson plans.

2.1 Learning Objective

2.1.1 Students should understand and implement the concept of "New Development," comprehend the "Five-in-One" overall layout of socialism with Chinese characteristics, and recognize that the "Five-in-One" layout is an interrelated and cohesive whole. They should learn to use critical thinking to understand that the construction of socialism with Chinese characteristics must prioritize economic development while coordinating economic, political, cultural, social, and ecological civilization construction. Additionally, they should grasp the fundamental theories, developmental directions, reform contents, and overall requirements of each aspect of construction.

2.1.2 Students should learn to apply critical thinking to understand the requirements for building a moderately prosperous society in all respects; the essential characteristics of the rule of law in socialism with Chinese characteristics; the implications of the overarching goal of deepening reforms comprehensively, and the specific measures for strict governance of the Party in all aspects.

2.1.3 Students should learn to apply critical thinking to comprehend the scientific connotations of building a world-class military force.

2.1.4 Students should learn to apply critical thinking to understand China's independent, self-reliant, and peaceful foreign policy. To grasp the core essence of promoting the establishment of a new type of international relations.

2.2 Learning introduction

Concerning the enhancement of students' critical thinking, the following instruction is recommended.

2.2.1 Critically study the instructional model to understand the background, theoretical approaches for the development of the instructional model, components, and the relationship between them.

2.2.2 Any person who wishes to use this instructional model to enhance students' critical thinking should critically read and make a clear understanding of this instructional model manual.

2.2.3 He/she should carefully read learning instruction to enhance students' critical thinking.

2.2.4 He/she should thoroughly understand and select relevant materials.

2.2.5 He/she should follow the organized lesson plans to enhance students' critical thinking.

2.2.6 He/she should use the standard developed assessment tools used to evaluate students' critical thinking.

2.3 Learning organization

2.3.1 Read the organized lesson plans and make a clear understanding of them.

2.3.2 Read learning instructions to enhance critical thinking and make a comprehensive understanding at each step.

2.3.3 Read and make a clear understanding of using learning materials to enhance students' critical thinking.

2.3.4 Read and make a clear understanding of using all assessment tools to evaluate critical thinking.

2.4 Content

To enhance lower secondary students' critical thinking, it is recommended that the instruction should follow all the organized lesson plans and particularly all the steps of learning instruction to enhance critical thinking. For this research, the content taken into consideration is political theory literacy with emphasis on some particular topics such as; Democratic political principles development, Cultural, and economic development, China's strategic security and global diplomacy, and People's livelihood issues.

Table 1: Content

NO.	Learning Module	Teaching Content	Hour
1	Chap.1 Democratic political principles development	Lesson 1 Theory and practice of whole-process democracy	2
2		Lesson 2 Comprehensive Rule of Law principle and path	2
3		Lesson 3 Comprehensive Strict Party Governance Effects	2
4	Chap.2 Cultural, and economic development	Lesson 4 Principles and Objectives of Cultural Prosperity	2
5		Lesson 5 The development of the modern economic system	2
6		Lesson 6 Comprehensive Deepening of economic and cultural Reforms	2
7	Chap.3 China's Strategic Security and Global Diplomacy	Lesson 7 National Security Strategy	2
8		Lesson 8 Military Modernization	2
9		Lesson 9 Global Diplomacy with Chinese Characteristics	2
10		Lesson 10 Causes of current livelihood problems in China	2
11	Chap. 4 People's Livelihood Issues	Lesson 11 Building a moderately prosperous society in all aspects	2
12		Lesson 12 Strengthening and Innovating Social Governance to Promote Livelihood Protection	2
Total			24

How to implement the instructional model

This instructional model brings about an improvement in students' critical thinking and shows the methods how the Lecturer will follow during the implementation process to bring about effective instruction. It also shows the various learning activities and the plan of activities to be followed, the number of hours (24 hours), and the content and objectives identified.

This innovation is made up of the following structures:

1. The research manual
2. Documents on how to follow and implement the innovation
3. Documents for the students to use during the innovation implementation process
4. PowerPoint presentations with the content to be taught
5. Records at all stages of this innovation implementation

2.2.5 Learning materials

The enhancement of students' critical thinking demands the use of a variety of learning materials which are used to enhance students' critical thinking.

2.2.5.1 Learning tools that are used to enhance students' critical thinking.

2.2.5.2 Lesson plans (12 sets): Different lesson plans will be prepared based on the topics to be taught with learning activities, steps, and materials stated in any given lesson.

2.2.5.3 Video/audio clips will also be used. Conversations and situational videos will be used for the students to relate to real situations.

2.2.6 Lecturer's Role and Students' Role

Since this innovation is to be used by the lecturers to enhance the critical thinking of students, it is therefore said that the lecturer has an important role

in implementing this innovation. The students should study the standards and the indicators of the content to be taught during the process:

Table 2: Lecturer's Role and Students' Role

Period	Lecturer's Role	Student's Role
Before Class	1. Assign materials for student preparation, including a set of guiding questions that highlight key concepts and potential challenges within the case.	1. Receives the assignment and reviews materials, focusing on the guiding questions, considering answers, and identifying areas needing further clarification.
	2. Prepare for class by reviewing the case and anticipating areas where students might struggle, formulating additional questions for discussion	2. Reads and prepares individually for class, emphasizing the guiding questions, and making notes on key facts, theories, and potential discussion points.
	3. Consult with colleagues about teaching cases, sharing insights on how to effectively use questions to stimulate critical thinking.	3. Participate in small group discussions, using guiding questions to structure discussions, delving deeper into the material, and formulating their questions
During Class	4. Set the class up to handle the assignment by organizing the seating to facilitate discussion, and revisiting guiding questions to frame the session.	4. Raises questions regarding the assignment, focusing on areas where the guiding questions led to deeper inquiry, actively engaging with peers' responses.
	5. Leads the case discussion by posing open-ended questions, encouraging exploration of different perspectives, and prompting justification with evidence.	5. Participate in the case discussion by responding to guiding questions, engaging with others' perspectives, and refining their understanding of the case.

Period	Lecturer's Role	Student's Role
	6. Evaluate student participation, focusing on engagement with guiding questions and demonstration of critical thinking.	6. Review class results using guiding questions to assess understanding, noting major concepts learned, and reflecting on how their thinking has evolved.
After Class	7. Evaluate materials considering the original teaching objectives, updating personal teaching notes based on which questions effectively promoted critical thinking.	7. Apply feedback received to improve preparation and participation in future discussions, with a focus on developing stronger critical thinking skills.

2.2.7 Timeframe

The entire duration used for instructional model implementation will be 24 hours (4 hours per week).

2.2.8 Lesson plans

The lesson plans are designed according to the components and procedures of the instructional model and were used during the process of instructional model implementation.

Lesson Plan 1

Topic: Theory and Practice of Whole-Process People Democracy

Chapter: 1

Duration: 2 hours

1. Lesson Objectives

At the end of this lesson, students should be able to:

1.1 Understand the theory behind whole-process democracy with a focus on enhancing skills in analysis and evaluation. Students will be able to analyze and evaluate the principles of whole-process democracy and their application in China's political system.

1.2 Comprehend the practical implementation of Whole-Process People Democracy with a focus on enhancing skills in evaluation. Students will be able to assess the effectiveness of whole-process democracy and its role in the system of the people being masters of the country.

2. Content

Theory and Practice of Whole-Process People Democracy

2.1 The theoretical foundations of Whole-Process People Democracy.

2.2 Analyze and evaluate the principles of Whole-Process People

Democracy within the people being masters of the country using the case method.

3. Learning Instruction/activities

Learning process	Lecturers' activities	Students' activities
Content Explanation (25 minutes)	Introduce the concept of Whole-Process People Democracy and its significance. Present guiding questions such as "What are the key symbols of this	Research and reflect on the concept of Whole-Process People Democracy and its symbolic representation in China's national emblem.

Learning process	Lecturers' activities	Students' activities
	concept?" and "How does this concept relate to China's national emblem?" to stimulate critical thinking. Ensure students understand the theoretical foundations before moving on to the case analysis.	Consider the guiding questions while preparing to explain the theoretical significance of this concept, enhancing their ability to articulate complex ideas.
Case Presentation (25 minutes)	Present the case of "Whole-Process People Democracy as a Vivid Practice of the people being masters of the country " Use guiding questions such as "How is whole-process democracy implemented in the People's Congress system?" and "What is the practical importance of this system in ensuring the people's role as masters of the country?" to lead students toward critical analysis.	Observe the case presentation and analyze the relationship between the theory of whole-process democracy and its practical implementation. Engage with the guiding questions to critically evaluate the necessity and effectiveness of the system.
Group Discussion (25 minutes)	Facilitate group discussions on the topic "How does whole-process democracy manifest in people's democracy? What are the practical advantages of this system?" Use questions like "What evidence supports this system's effectiveness?" to encourage deep analysis. Monitor discussions, provide prompts to keep students focused on critical evaluation, and select representatives to present their	Engage in group discussions to analyze the concept of whole-process democracy and its practical advantages. Use evidence and logical reasoning to evaluate the system, clearly articulating the group's findings and critically assessing different perspectives.

Learning process	Lecturers' activities	Students' activities
	group's conclusions.	
Synthesis and Reflection (25 minutes)	Summarize key points, explaining the importance of adhering to the political development path of socialism with Chinese characteristics. Use reflection questions like "How does whole-process democracy function within this framework?" to encourage students to question and reflect on the system's composition and effectiveness.	Listen, take notes, and engage with the lecturer's summary. Reflect on the discussion and ask questions to clarify understanding, critically analyzing the explanations provided and considering their own viewpoints on the political system.
Assessment and Feedback (20 minutes)	Provide detailed feedback on students' participation, focusing on how well they engaged with the guiding questions and demonstrated critical thinking. Offer suggestions for improvement and encourage students to reflect on how they can apply the lesson's insights to future discussions and analyses.	Reflect on the feedback, synthesizing their understanding of the socio-political concepts discussed. Consider how to improve their critical thinking and analytical skills, and apply these reflections to future learning and discussions.

4. Instructional Materials:

4.1 Textbook designated by the Ministry of Education for ideological and political courses for university students, PPT

4.2 Videos of the case. TV, projectors, computer to watch the related videos. Multimedia resources: <https://www.youtube.com/watch?v=2X--A9CtlgM>

4.3 Case introduction materials: "The Whole Process of Democracy as a

Vivid Practice of the People Being Masters of the Country- Documentary Inside China: A Discovery Tour”. A set of critical questions designed to guide students in analyzing and evaluating the case:

What is people’s democracy?

What is whole-process democracy?

Is there freedom of religious belief in China?

Has China upheld the principle of life first?

Are the cultures of all ethnic groups being protected?

Xinhua News Agency reporters, along with three American experts, traveled tirelessly for 45 days across more than half of China, seeking answers to these questions through the case of the practice of whole-process people's democracy.

5. Learning Assessment

Assessment	Assessment Tools	Learning outcome
Assessment of students' understanding of the theory and practice of whole-process democracy	Observation of students' participation in discussions and activities	<ul style="list-style-type: none"> - Students can analyze and evaluate the theoretical foundations of whole-process democracy. -Students can critically assess the practical implementation of whole-process democracy and propose informed suggestions for its improvement.

Lesson Plan 2

Topic: Comprehensive Rule of Law: Principle and Path

Chapter: 1

Duration: 2 hours

1. Lesson Objectives

To enable students to adhere to how to deepen the rule of law in the new era, with a focus on enhancing students' skills in interpretation and inference.

2. Content

Comprehensive Rule of Law: Principle and Path

2.1 Theoretical foundations of the comprehensive rule of law.

2.2 Interpretation and inference of the implementation and impact of the rule of law in China, with recent case studies.

3. Learning Instruction/activities

Learning process	Lecturers' activities	Students' activities
Content Explanation (25 minutes)	Explanation the concept of comprehensive rule of law, focusing on its implementation in China. Present case studies from 2022 to illustrate its practice. Pose guiding questions such as "What are the key challenges in implementing the comprehensive rule of law?" to enhance critical thinking.	Research and interpret the concept of comprehensive rule of law, focusing on its application in China. Analyze the case studies and draw inferences about its societal impact.
Case Presentation (25 minutes)	Present cases and introduce major events related to China's comprehensive rule of law in 2022. Use guiding questions to help students	Observe and analyze the cases, focusing on understanding the

Learning process	Lecturers' activities	Students' activities
	understand the principles and implications of these events.	principles behind the comprehensive rule of law and their application in real-world scenarios.
Group Discussion (25 minutes)	Divide students into small groups to discuss specific aspects of China's comprehensive rule of law based on their research. Facilitate the discussions, prompting students with questions like "How effective are these legal reforms in achieving their goals?" Summarize the discussions to deepen understanding.	Engage in group discussions to analyze and evaluate the implications and effectiveness of China's legal reforms. Use evidence and reasoning to support their views.
Synthesis and Reflection (25 minutes)	Summarize the key content of the lesson, focusing on the importance of the comprehensive rule of law within the political framework of socialism with Chinese characteristics. Encourage reflection on how these laws function in practice and their broader impact.	Listen, take notes, and engage with the lecturer's summary. Reflect on the content, ask questions for clarification, and critically analyze how the comprehensive rule of law is implemented.
Assessment and Feedback (20 minutes)	Assign a reflective essay where students articulate their understanding of China's comprehensive rule of law, emphasizing key insights and changes in their perspectives. Organize a peer review process where students exchange essays and provide feedback.	Write a reflective essay, critically assessing their understanding of the comprehensive rule of law. Participate in peer review, offering and receiving constructive feedback.

4. Instructional Materials:

4.1 Textbook designated by the Ministry of Education for ideological and political courses for university students, PPT

4.2 Videos of the case. TV, projectors, and computers to watch the related videos.

Multimedia resources:

<https://www.chinalaw.org.cn/portal/article/index/id/32779.html>

4.3 Case introduction materials: <Highlights of the Annual Report on the Construction of the Rule of Law in China (2022)>

5. Learning Assessment

Assessment	Assessment Tools	Learning outcome
Assessment of students' understanding of the comprehensive rule of law and its implementation in China	Observation of students' participation in discussions and activities	<p>- Students can interpret the principles of the comprehensive rule of law and analyze its application in China.</p> <p>-Students can critically assess the effectiveness of legal reforms and articulate their understanding through explanation and inference.</p>

Lesson Plan 3

Topic: Comprehensive Strict Party Governance: Principles and Effects

Chapter: 1

Duration: 2 hours

1. Lesson Objectives

At the end of this lesson, students should be able to:

1.1 Understand how to comprehensively and strictly govern the Party with a focus on enhancing critical thinking in interpretation. Students will interpret the principles of strict Party governance and its relevance to contemporary politics.

1.2 Develop the ability to infer the long-term effects of strict Party governance on Chinese society. Students will enhance their inference skills of critical thinking.

2. Content

Comprehensive Strict Party Governance: Principles and Effects

2.1 Theoretical Foundations: Analyze the principles of strict Party governance, drawing on lessons from the dissolution of the Soviet Communist Party to enhance interpretation skills.

2.2 Practical Implementation: Evaluate the long-term effects of China's 2022 anti-corruption measures on society, focusing on the inference of their impact within the framework of strict Party governance.

3. Learning Instruction/activities

Learning process	Lecturers' activities	Students' activities
Content Explanation (25 minutes)	Present materials on "The Historical Lessons of the Collapse of the Soviet Party and the Soviet Union"	Research and reflect on the provided materials. Prepare to interpret the significance of strict governance and its impact on the

Learning process	Lecturers' activities	Students' activities
	and images of the Communist Party of China's comprehensive and strict governance. Pose the question, "Why does the Party have the courage to turn inward and reform itself?" as an introduction.	Party's strength and stability.
Case Presentation (25 minutes)	Present the cases "The Historical Lessons of the Dissolution of the Soviet Communist Party and the Soviet Union" and "The 2022 Anti-Corruption 'Report Card' Release." Explain the context and significance of these events.	Analyze the causes and effects presented in the cases. Interpret the underlying reasons and evaluate the implications of these historical and contemporary events.
Group Discussion (25 minutes)	Divide students into groups to discuss the dissolution of the Soviet Communist Party and the 2022 anti-corruption measures in China. Facilitate the discussion and ensure that each group presents their conclusions.	Participate in group discussions, analyzing the implications of strict governance. Infer the potential long-term impacts of these measures and present their group's findings.
Synthesis and Reflection (25 minutes)	Ask students to synthesize insights from the discussions and reflect on the implications of strict Party governance for modern governance.	Individually synthesize the group discussions and reflect on the long-term effects of the events discussed. Explain their understanding of the implications for governance, demonstrating their ability to integrate complex

Learning process	Lecturers' activities	Students' activities
		political information.
Assessment and Feedback (20 minutes)	Assign students to watch the documentary "National Supervision" and write a 300-word reflection. Provide guidelines for evaluation and peer review.	Write a reflective essay, critically assessing the documentary content. Participate in peer review, offering and receiving constructive feedback on the depth of analysis.

4. Instructional Materials:

4.1 Textbook designated by the Ministry of Education for ideological and political courses for university students, PPT

4.2 Videos of the case. TV, projectors, and computers to watch the related videos.

Multimedia resources: <https://www.acfun.cn/v/ac20199356>

<http://fanfu.people.com.cn/n1/2024/0105/c64371-40153531.html>

4.3 Case introduction materials

The process of the dissolution of the Soviet Communist Party and the disintegration of the Soviet Union is presented panoramically through extensive historical data and footage, with an analysis of the fundamental reasons behind these events. The other case explores China's ongoing anti-corruption efforts in 2023, highlighting the strict governance measures taken against high-level officials and grassroots leaders, and analyzing their impact on enhancing Party discipline and promoting social stability.

5. Learning Assessment

Assessment	Assessment Tools	Learning outcome
<p>Assessment of students' understanding of strict Party governance</p> <p>Observation of students' participation in discussions and activities</p>	<p>Observation of students' participation in discussions and activities</p>	<p>-Students can interpret the principles of strict Party governance and analyze their significance.</p> <p>-Students can infer the long-term effects of governance practices and explain their understanding effectively.</p>

Lesson Plan 4

Topic: Principles and Objectives of Cultural Prosperity

Chapter: 2

Duration: 2 hours

1. Lesson Objectives

At the end of this lesson, students should be able to:

1.1 Strengthen their cultural self-confidence by understanding the basic requirements and importance of thriving and developing a socialist culture. Students will enhance their skills in analyzing cultural concepts and evaluating the significance of cultural self-confidence.

1.2 Understand the role of cultural power in socialist development, focusing on enhancing their ability to evaluate the impact of cultural prosperity on society.

2. Content

Principles and Objectives of Cultural Prosperity

2.1 Analyze the basic requirements and importance of cultural self-confidence in the development of a thriving socialist culture.

2.2 Evaluate the role of cultural power in socialist development, focusing on its impact on societal prosperity.

3. Learning Instruction/activities

Learning process	Lecturers' activities	Students' activities
Content Explanation (10 minutes)	Explanation of the significance of cultural power and cultural self-confidence in the context of socialist development. Provide an	Conduct preliminary thinking on cultural power and self-confidence, focusing on their significance in the modern socialist context. Prepare to

Learning process	Lecturers' activities	Students' activities
	overview of the case study "The Revival of Traditional Chinese Culture in the Modern Era."	engage with the case study during the lesson.
Case Presentation (35 minutes)	Present the case study "The Revival of Traditional Chinese Culture in the Modern Era" using the case method. Highlight key themes related to cultural self-confidence and cultural power. Encourage critical analysis of the cultural resurgence and its implications for Chinese society.	Analyze the case, identifying key aspects of cultural power and cultural self-confidence. Critically evaluate the reasons behind the revival of traditional culture and its impact on modern socialist values.
Group Discussion (25 minutes)	Organize students into groups to discuss the case study and answer the question, "In what ways does the revival of traditional Chinese culture enhance cultural self-confidence?" Facilitate deeper discussions on the strategic importance of cultural self-confidence in socialist development.	Participate in group discussions, analyzing the relationship between cultural revival and cultural self-confidence. Present findings in an oral report, explaining the significance of cultural power in modern China.
Synthesis and Reflection (25 minutes)	Guide students in synthesizing key points from the case study and discussions, emphasizing practical steps in building a thriving socialist cultural power. Encourage reflection on how cultural power contributes to national identity	Reflect on the lesson's content, synthesizing discussions into a coherent understanding of how cultural power and cultural self-confidence support the development of socialist culture. Prepare to present their

Learning process	Lecturers' activities	Students' activities
	and social cohesion.	reflections.
Assessment and Feedback (20 minutes)	Provide feedback based on students' participation, presentations, and discussions, focusing on their ability to critically analyze and explain complex cultural concepts. Assess understanding and offer guidance for improvement.	Write a brief reflection on their understanding of cultural self-confidence and power, considering the feedback received. Participate in peer evaluations to further refine critical thinking and analytical skills.

4. Instructional Materials:

4.1 Textbook designated by the Ministry of Education for ideological and political courses for university students, PPT

4.2 Videos of the case. TV, projectors, and computers to watch the Related videos.

Multimedia resources:

http://www.xinhuanet.com/politics/2021-03/24/c_1127248521.htm

4.3 Case introduction materials:

"The Revival of Traditional Chinese Culture in the Modern Era" This case explores the interplay between traditional Chinese culture and modernization, illustrating how cultural self-confidence and cultural power have been instrumental in developing a thriving socialist culture. By analyzing historical and contemporary examples, the case aligns with the lesson's objectives, helping students to analyze the importance of cultural self-confidence and evaluate the impact of cultural prosperity on socialist development in China.

5. Learning Assessment

Assessment	Assessment Tools	Learning outcome
Assessment of students' ability to analyze and interpret the principles of cultural self-confidence.	Observation of students' participation in discussions and activities	<p>-Students show enhancement in their critical thinking abilities by making informed inferences about the role of cultural power.</p> <p>-Students effectively evaluate the implications of cultural power for national identity and social cohesion, demonstrating deep analysis.</p>

Lesson Plan 5

Topic: The Development of the Modern Economic System

Chapter: 2

Duration: 2 hours

1. Lesson Objectives

At the end of this lesson, students should be able to:

1.1 Understand the importance of deepening supply-side structural reforms, with a focus on enhancing skills in analysis and evaluation. Students will be able to analyze and evaluate the theories and concepts related to the modern economic system.

1.2 Comprehend the content composition and measures of the modern economic system, with a focus on enhancing skills in evaluation. Students will be able to effectively discuss and evaluate supply-side reforms and their impact on the economy.

2. Content

Modern Economic System and Supply-Side Reforms

2.1 Theories of the modern economic system.

2.2 Evaluate the Supply-Side Reforms and Economic Impact and measures of supply-side reforms, with a focus on their impact on the economy and their role in shaping the modern economic system by using the case method.

3. Learning Instruction/activities

Learning process	Lecturers' activities	Students' activities
Content Explanation (25 minutes)	Introduce theories of modern economic systems and the concept of supply-side reform. Break down these concepts into fundamental components	Listen attentively, take notes, and engage in analyzing the concepts presented. Begin thinking

Learning process	Lecturers' activities	Students' activities
	and encourage students to critically analyze their effectiveness and limitations using evidence and logical reasoning.	critically about the effectiveness of supply-side reforms.
Case Presentation (25 minutes)	Present the 'Overseas Shopping Craze' case study, guiding students from observable phenomena to underlying economic principles. Encourage students to identify the key drivers of the craze and evaluate the role of supply-side issues. Ask critical questions to assess the effectiveness of supply-side management in addressing these factors.	Observe and analyze the case, focusing on the factors contributing to the overseas shopping trend. Evaluate and compare supply-side versus demand-side management approaches in addressing these issues.
Group Discussion (35 minutes)	Facilitate group discussions on the topic "Why focus on the supply side?" Encourage students to critically analyze different perspectives, deconstructing arguments into key components. Guide them to evaluate the strengths and weaknesses of each viewpoint, helping them build well-supported conclusions.	Analyze the rationale for focusing on the supply side. Engage in evaluating the arguments presented within the group, using evidence and reasoning to support or challenge each perspective. Work towards synthesizing a balanced conclusion.
Synthesis and Reflection (25 minutes)	Guide students in summarizing and reflecting on the discussions. Help them integrate different viewpoints and enhance their critical thinking. Emphasize the importance of connecting their evaluations to a broader understanding of economic principles.	Summarize and reflect on the analysis and evaluations performed during the discussion. Consider how the evaluation of evidence and arguments influenced their understanding of

Learning process	Lecturers' activities	Students' activities
		supply-side reforms.
Assessment and Feedback (20 minutes)	Summarize key points from the class and provide specific feedback on students' analytical and evaluative skills. Assess their ability to critically engage with economic concepts and offer suggestions for improvement.	Receive feedback, revise their understanding based on evaluation, and reflect on how to improve their analysis and evaluation skills for future discussions.

4. Instructional Materials:

4.1 Textbook designated by the Ministry of Education for ideological and political courses for university students, PPT

4.2 Videos of the case. TV, projectors, and computers to watch the Related videos.

Multimedia resources:

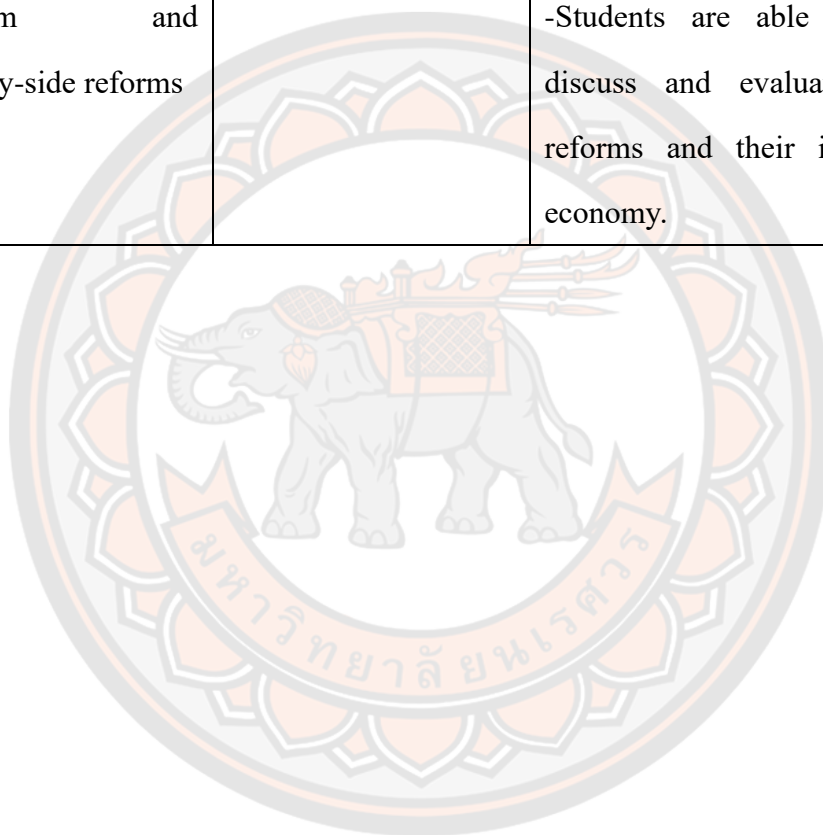
<http://travel.people.com.cn/n1/2016/0115/c41570-28056040.html>

4.3 Case introduction materials: 'Overseas Shopping Craze'

This case explores the growing trend of Chinese consumers purchasing goods overseas, particularly high-end products, highlighting the underlying supply-side issues in China's domestic market. It examines why consumers are drawn to foreign markets, the gaps between domestic supply and consumer expectations, and the potential of supply-side reforms to redirect this purchasing power back to China.

5. Learning Assessment

Assessment	Assessment Tools	Learning outcome
Assessment of students' understanding of the modern economic system and supply-side reforms	Observation of students' participation in discussions and activities	<p>- Students are able to analyze and evaluate the theories and concepts related to the modern economic system.</p> <p>-Students are able to effectively discuss and evaluate supply-side reforms and their impact on the economy.</p>



Lesson Plan 6

Topic: Comprehensive Deepening of economic and cultural Reforms

Chapter: 2

Duration: 2 hours

1. Lesson Objectives

At the end of this lesson, students should be able to:

1.1 Adhere to the direction, position, and principle of comprehensively deepening economic and cultural reforms with a focus on enhancing critical thinking in interpretation and inference.

1.2 Analyze and explain the impact of economic and cultural reforms on Chinese society

2. Content

Comprehensive Deepening of economic and cultural Reforms

2.1 Analyze the theoretical foundations that support the comprehensive deepening of economic reforms

2.2 Evaluate the implementation and impact of key economic reforms in China, using "China Manufacturing 2025" as a case study.

3. Learning Instruction/activities

Learning process	Lecturers' activities	Students' activities
Content Explanation (25 minutes)	Introduce the concept of comprehensive deepening of economic and cultural reforms, focusing on the "Made in China 2025" initiative. Explain how this strategy aims to transition China from a manufacturing giant to a global leader in advanced	Interpret the objectives of the "Made in China 2025" initiative. Analyze its significance for China's economic development and how it addresses challenges in the global manufacturing sector.

Learning process	Lecturers' activities	Students' activities
	manufacturing.	
Case Presentation (25 minutes)	Present the case study of the "Made in China 2025" plan, highlighting key policies and technological advancements. Guide students to understand how these policies aim to modernize China's manufacturing sector and enhance global competitiveness.	Observe and analyze the case study, focusing on the specific reforms and innovations introduced under the "Made in China 2025" plan. Evaluate how these measures contribute to economic growth and technological advancement in China.
Group Discussion (25 minutes)	Divide students into small groups to discuss the impact of the "Made in China 2025" initiative on China's economy. Facilitate discussions by encouraging students to compare this initiative with similar global strategies. Summarize the discussion to deepen understanding.	Engage in group discussions, analyzing the effectiveness of the "Made in China 2025" reforms. Evaluate how this initiative positions China in the global manufacturing industry and discuss its potential long-term impacts. Present the group's conclusions.
Synthesis and Reflection (25 minutes)	Summarize the key points of the lesson, emphasizing the role of advanced manufacturing in China's economic reforms. Encourage students to reflect on how the "Made in China 2025" plan contributes to the broader goals of economic modernization and global competitiveness.	Reflect on the lesson's content, synthesizing the discussion points. Critically analyze how the "Made in China 2025" initiative influences China's economic trajectory and its implications for future reforms.
Assessment and	Guide students in creating a digital report using the Rain Classroom platform, summarizing	Create a digital report that outlines the key aspects of the "Made in China 2025"

Learning process	Lecturers' activities	Students' activities
Feedback (20 minutes)	the goals and impacts of the "Made in China 2025" initiative. Provide feedback on their analysis and the quality of their presentations.	initiative and its impact on China's economy. Review classmates' reports, offering constructive feedback to enhance understanding and critical thinking.

4. Instructional Materials:

4.1 Textbook designated by the Ministry of Education for ideological and political courses for university students, PPT

4.2 Videos of the case. TV, projectors, and computers to watch the Related videos.

Multimedia resources:

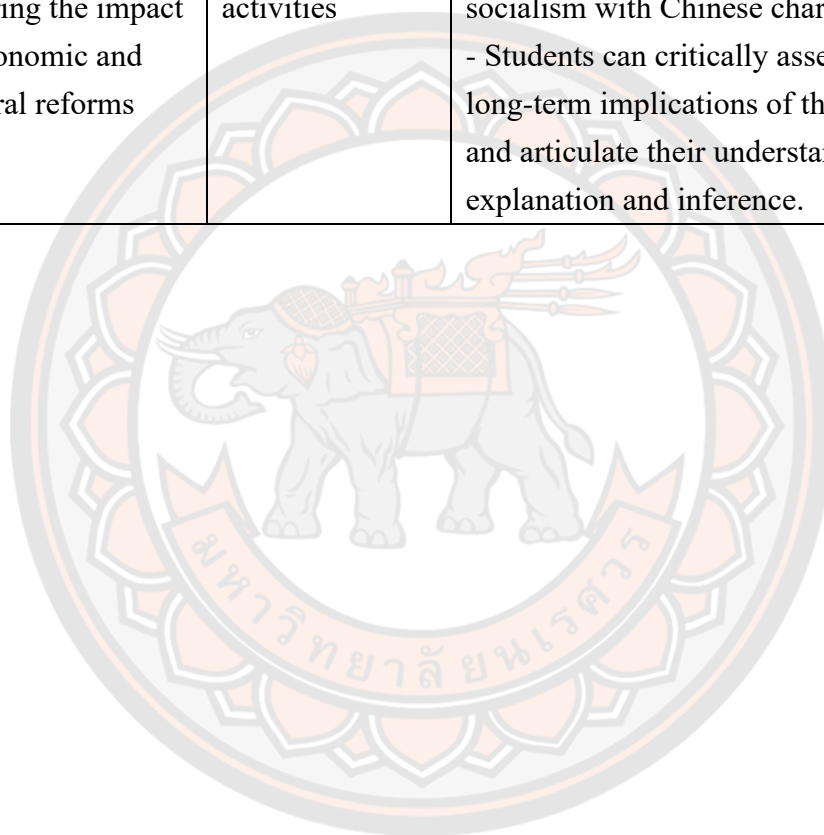
<https://haokan.baidu.com/v?pd=wisenatural&vid=3405375807611351147>

4.3 Case introduction materials: "Made in China 2025" plan

"Made in China 2025" is a strategy proposed by the Chinese government in 2015 to promote the transformation of China from a manufacturing power to a manufacturing power. The core of the plan is to enhance the global competitiveness of the manufacturing industry through technological innovation, industrial upgrading, and strengthening intellectual property protection. Application: This case study can help students analyze how the implementation of economic reforms has driven the modernization of China's manufacturing industry and explore the impact of this strategy on economic growth and international competitiveness.

5. Learning Assessment

Assessment	Assessment Tools	Learning outcome
Assessment of students' critical thinking skills in interpreting and inferring the impact of economic and cultural reforms	Observation of students' participation in discussions and activities	<ul style="list-style-type: none"> - Students can interpret the principles behind the comprehensive deepening of economic and cultural reforms and analyze their significance for the development of socialism with Chinese characteristics. - Students can critically assess the long-term implications of these reforms and articulate their understanding through explanation and inference.



Lesson Plan 7

Topic: National Security Strategy

Chapter: 3

Duration: 2 hours

1. Lesson Objectives

At the end of this lesson, students should be able to:

1.1 Help students understand the importance of national security for a stable nation.

1.2 Enhance students' critical thinking skills in interpretation, inference, analysis, and evaluation, especially concerning national security issues.

2. Content

Comprehensive Rule of Law: Principle and Path

2.1 Explore the strategic importance of national security through the South China Sea Disputes case study.

2.2 Analyze and evaluate China's national security strategies and their broader impact.

3. Learning Instruction/activities

Learning process	Lecturers' activities	Students' activities
Content Explanation (25 minutes)	Present impactful images related to national security and introduce the topic by questioning, "How safe is China today?" Briefly introduce the South China Sea Disputes to highlight its relevance to China's national security.	Analyze the images and reflect on the importance of national security. Begin to evaluate how national security measures impact individual and societal well-being.
Case Presentation	Present the case study on the South China Sea Disputes, focusing on its geopolitical,	Engage with the case study by analyzing China's national security strategies.

Learning process	Lecturers' activities	Students' activities
(25 minutes)	economic, and military significance. Guide students to analyze the case and assess China's strategies.	Evaluate the effectiveness of these strategies and their broader implications for regional and global security.
Group Discussion (25 minutes)	Organize students into small groups to discuss the topic: "How do China's strategic decisions in the South China Sea influence regional stability and global perceptions of national security?" Provide guiding questions to encourage analysis from different perspectives. Facilitate discussions to ensure critical thinking is applied.	Participate in group discussions, analyzing China's strategic decisions in the South China Sea. Evaluate their implications for regional stability and global perceptions. Consider multiple perspectives and potential outcomes in the discussion.
Synthesis and Reflection (25 minutes)	Summarize the key points from the case study and group discussions. Encourage students to reflect on how national security strategies, like those in the South China Sea, are essential for maintaining national stability.	Reflect on the key insights from the discussions. Synthesize how the case study deepens their understanding of national security and its broader impact on China's stability.
Assessment and Feedback (20 minutes)	Guide students to create a summary of the South China Sea Disputes and its implications for national security. Provide feedback on their analysis and clarity of thought.	Create a summary of the case study, focusing on its national security implications. They evaluate how the case contributes to their understanding of China's broader security strategies, further enhancing their critical thinking skills in analysis and evaluation.

4. Instructional Materials:

4.1 Textbook designated by the Ministry of Education for ideological and political courses for university students, PPT

4.2 Videos of the case. TV, projectors, and computers to watch the related videos.

Multimedia resources:

<https://mil.ifeng.com/c/8bOP54lqyFS>

4.3 Case introduction materials: "South China Sea Disputes"

This case examines the South China Sea's strategic importance, tracing its historical significance and the ongoing disputes that have made it a focal point of China's national security strategy. By analyzing China's actions and the involvement of other nations, this case provides a context for understanding the critical role of national security in maintaining a stable nation. It offers an opportunity for students to enhance their critical thinking skills by interpreting, analyzing, and evaluating the broader impact of these security issues on both regional and global levels.

5. Learning Assessment

Assessment	Assessment Tools	Learning outcome
Assessment of students' critical thinking in analyzing national security issues	Observation of students' participation in discussions and activities	<ul style="list-style-type: none"> - Students apply critical thinking to analyze the South China Sea Disputes and draw informed conclusions. - Students demonstrate their ability to evaluate national security strategies, showing clear reasoning and depth of understanding.

Lesson Plan 8

Topic: Military Modernization

Chapter: 3

Duration: 2 hours

1. Lesson Objectives

At the end of this lesson, students should be able to:

1.1 Develop critical thinking skills by analyzing and inferring the specific goals and strategic arrangements of military modernization in the new era, evaluating their effectiveness and potential challenges.

1.2 Critically evaluate the importance of national defense strategies and their role in strengthening the military, with a focus on assessing the implications for China's long-term security and global positioning and making informed judgments on their broader impact.

2. Content

Military Modernization

2.1 Explore the background and role of China's integrated national strategic system in military modernization.

2.2 Analyze and infer the long-term implications of military modernization on national security and global stability.

3. Learning Instruction/activities

Learning process	Lecturers' activities	Students' activities
Content Explanation (25 minutes)	Explanation the background and objectives of China's aircraft carrier development within the broader context of military modernization. Provide relevant resources and guide students to	Study the provided resources focusing on understanding the significance of aircraft carriers in military modernization. Analyze the strategic importance of aircraft carriers for enhancing national

Learning process	Lecturers' activities	Students' activities
	analyze how this development supports military strength.	defense capabilities.
Case Presentation (25 minutes)	Present the case of China's aircraft carrier development, highlighting key milestones and strategic decisions. Guide students to critically analyze the impact of these developments on China's national security and infer the long-term implications for regional and global security dynamics.	Engage with the case study by analyzing the strategic decisions behind China's aircraft carrier program. Apply critical thinking to infer the broader implications of these developments on national and global security.
Group Discussion (25 minutes)	Organize group discussions on how China's military modernization affects international relations and domestic policy. Provide prompts that encourage analysis and inference. Facilitate the discussion to ensure critical engagement.	Participate in group discussions, analyzing the impact of China's aircraft carrier program on global security and its role in international relations. Critically evaluate different perspectives and infer the long-term effects on global power dynamics.
Synthesis and Reflection (25 minutes)	Summarize key insights from the group discussions. Guide students in synthesizing how the development of aircraft carriers interacts with China's national security strategies and its global positioning. Encourage reflection on the long-term implications for China's defense policy and	Synthesize information from the discussions and reflect on how aircraft carrier development shapes China's national security and international standing. Enhance their ability to analyze, infer, and connect these strategies to broader global security trends.

Learning process	Lecturers' activities	Students' activities
	international influence.	
Assessment and Feedback (20 minutes)	Assign a written reflection where students analyze the case study's strategic impact and infer its potential consequences for national and global security. Provide detailed feedback on their analytical and inferential reasoning.	Write a reflection analyzing the long-term impact of China's aircraft carrier development on national and global security. Use the feedback to further develop their critical thinking skills in analysis and inference.

4. Instructional Materials:

4.1 Textbook designated by the Ministry of Education for ideological and political courses for university students, PPT

4.2 Videos of the case. TV, projectors, and computers to watch the Related videos.

Multimedia resources:

<https://tv.sohu.com/v/dXMvMjAwNTUzOTc3LzUzODE0OTEzNi5zaHRtbA.html>

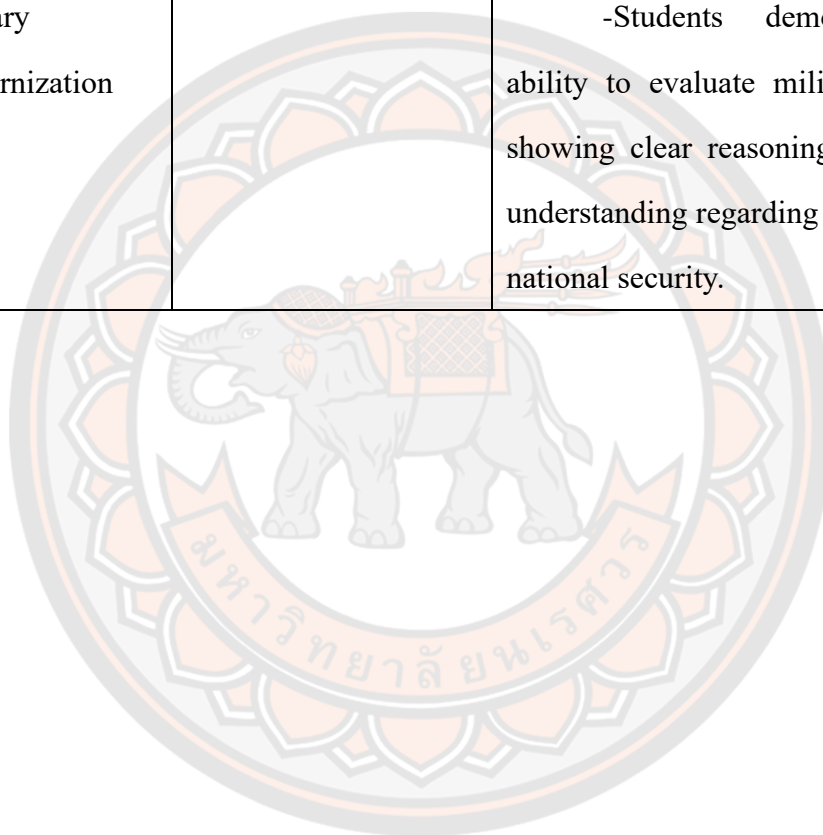
4.3 Case introduction materials:

China's Aircraft Carrier Development

This case focuses on the development of China's aircraft carriers, from the commissioning of the Liaoning in 2012 to the advancements with the Shandong and Fujian carriers. Students will analyze and infer how these milestones in military modernization reflect China's strategic objectives. They will evaluate the implications for national security and global military dynamics, enhancing their critical thinking skills in analysis, inference, and evaluation.

5. Learning Assessment

Assessment	Assessment Tools	Learning outcome
Assessment of students' critical thinking in analyzing military modernization	Observation of students' participation in discussions and activities	<p>-Students apply critical thinking to analyze the selected military modernization case and draw informed conclusions.</p> <p>-Students demonstrate their ability to evaluate military strategies, showing clear reasoning and depth of understanding regarding their impact on national security.</p>



Lesson Plan 9

Topic: Global Diplomacy with Chinese Characteristics

Chapter: 3

Duration: 2 hours

1. Lesson Objectives

At the end of this lesson, students should be able to:

1.1 Enhance their critical thinking skills in interpretation and inference by exploring the fundamental principles of China's diplomatic work in the new era.

1.2 Understand the strategic goals of China's diplomacy and evaluate its impact on international relations and global stability.

2. Content

2.1 Analyze the historical background and core principles of China's foreign policy, focusing on the Five Principles of Peaceful Coexistence, to enhance students' ability to interpret and infer their relevance in the modern era.

2.2 Evaluate specific diplomatic strategies employed by China and their effectiveness in addressing contemporary global challenges, enabling students to critically assess the impact on international relations and global stability.

3. Learning Instruction/activities

Learning process	Lecturers' activities	Students' activities
Content Explanation (15 minutes)	Explanation the historical background of China's foreign policy, with a focus on the "Belt and Road Initiative." Provide resources on its goals, principles, and recent developments. Guide students to interpret how this	Research the "Belt and Road Initiative," focusing on its strategic goals and principles. Prepare to discuss how this initiative aligns with China's broader diplomatic strategies, with a focus on interpretation and inference.

Learning process	Lecturers' activities	Students' activities
	initiative reflects China's broader diplomatic objectives.	
Case Presentation (25 minutes)	Present the “Belt and Road Initiative” as a case study. Guide students to analyze its strategic objectives, implementation challenges, and global impact. Encourage students to evaluate the effectiveness of this initiative in promoting international cooperation and stability.	Engage with the case study by analyzing the strategic objectives of the “Belt and Road Initiative” and its global implications. Use critical thinking to evaluate its effectiveness in achieving China’s diplomatic goals and infer its potential long-term outcomes.
Group Discussion (25 minutes)	Organize group discussions on the topic: "How does the ‘Belt and Road Initiative’ address global challenges and influence international relations?" Provide prompts to encourage analysis and evaluation.	Participate in group discussions to analyze and evaluate the effectiveness of the “Belt and Road Initiative” in addressing global challenges. Use critical thinking to infer the long-term effects of this initiative on international relations and global stability.
Synthesis and Reflection (25 minutes)	Guide students in synthesizing insights from the case study and group discussions. Facilitate an online poll where students select the most significant impact of the “Belt and Road Initiative” and justify their choice. Lead a class discussion based on the poll	Synthesize insights from discussions and the case study. Participate in the online poll by selecting the most significant impact of the “Belt and Road Initiative” and justifying their choice. Engage in the class discussion to refine their reasoning and reflect on different perspectives.

Learning process	Lecturers' activities	Students' activities
	results, providing feedback on their reasoning.	
Assessment and Feedback (20 minutes)	Review students' participation in the poll and class discussion. Provide feedback on their ability to critically analyze and justify their selections.	Reflect on the feedback received and consider how to improve their analysis and evaluation of the “Belt and Road Initiative.” Use the insights gained to refine their critical thinking skills in future discussions and assessments.

4. Instructional Materials:

4.1 Textbook designated by the Ministry of Education for ideological and political courses for university students, PPT

4.2 Videos of the case. TV, projectors, and computers to watch the related videos. Multimedia resources:

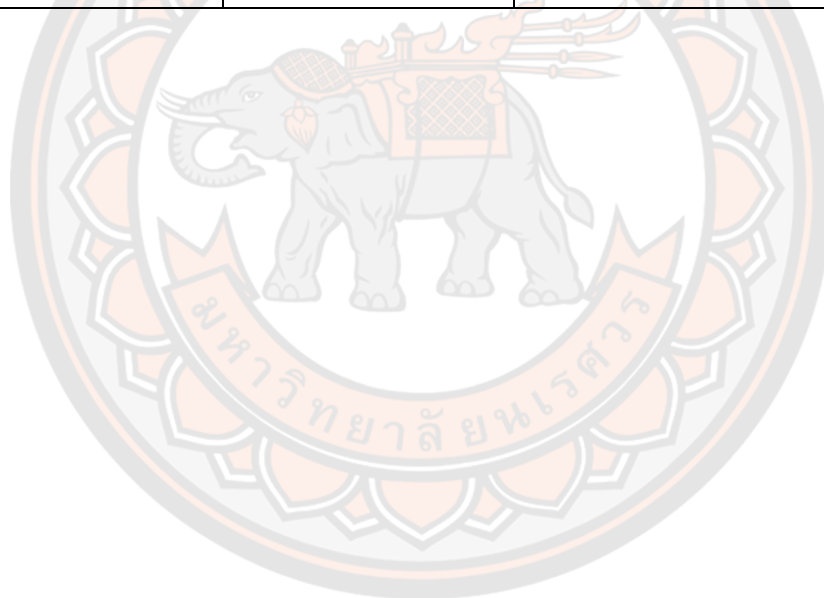
<https://haokan.baidu.com/v?pd=wisenatural&vid=5093056610529219408>

4.3 Case introduction materials: Belt and Road Initiative

This case study examines the Belt and Road Initiative (BRI), a key element of China's global diplomacy aimed at building a community with a shared future for mankind. Through the BRI, China has created extensive international cooperation platforms, linking the development goals of participating countries. The case highlights the impact of the China-Laos Railway as a practical example of how the BRI enhances connectivity, economic growth, and cultural exchange, offering students an opportunity to analyze and evaluate the strategic significance and global implications of this initiative.

5. Learning Assessment

Assessment	Assessment Tools	Learning outcome
Assessment of students' critical thinking skills in analyzing current livelihood challenges and identifying root causes	Observation of students' participation in discussions and activities	<p>-Students demonstrate enhanced critical thinking by effectively analyzing the root causes of livelihood issues.</p> <p>-Students critically evaluate potential solutions, showing depth in reasoning and assessment.</p>



Lesson Plan 10

Topic: Causes of Current Livelihood Problems in China

Chapter: 3

Duration: 2 hours

1. Lesson Objectives

At the end of this lesson, students should be able to:

1.1 Understand the current challenges in China's livelihood issues, including economic inequality, healthcare access, and employment.

1.2 Enhance critical thinking skills in analysis and evaluation through case study exploration of these interconnected issues.

2. Content

2.1 Overview of major livelihood challenges in China, focusing on economic inequality, health care access, and employment.

2.2 Analysis of the causes and implications of these challenges for social stability.

3. Learning Instruction/activities

Learning process	Lecturers' activities	Students' activities
Content Explanation (15 minutes)	Introduce key livelihood issues in China: economic inequality, healthcare, and employment. Use data and examples to frame the discussion.	Reflect on the challenges and prepare for discussion on their impact and significance.
Case Presentation (25 minutes)	Present the case "Economic Inequality, Healthcare Access, and Employment in China" with real-world data. Encourage analysis of how these issues are	Analyze the presented case, identifying and evaluating the root causes of the major livelihood issues discussed.

Learning process	Lecturers' activities	Students' activities
	interconnected and their broader impact on society.	
Group Discussion (25 minutes)	Topic: "How can China address economic inequality, healthcare access, and employment challenges to enhance social stability?" Provide guiding questions: "Which policy areas need the most urgent reform?" "How do changes in one area affect the others?" Facilitate the discussion, ensuring critical evaluation.	Engage in group discussions, analyze the causes and potential solutions to the livelihood issues, and present the findings.
Synthesis and Reflection (25 minutes)	Summarize the discussions and guide students in synthesizing their understanding of the interconnected issues.	Reflect on the discussion, synthesize insights, and critically analyze how comprehensive policies could address these challenges.
Assessment and Feedback (20 minutes)	Assign a short essay on one livelihood issue, including proposed solutions. Provide feedback on critical thinking and analysis. students to write a brief analysis (200-300 words) of one major livelihood issue discussed in class, including potential solutions. Provide immediate feedback on their analysis, focusing on their critical thinking and evaluation skills.	Write a short analysis of the selected livelihood issue, highlighting its causes and proposing feasible solutions. Reflect on the lecturer's feedback to improve future analysis and evaluation.

4. Instructional Materials:

4.1 Textbook designated by the Ministry of Education for ideological

and political courses for university students, PPT

4.2 Videos of the case. TV, projectors, computers to watch the related videos. Multimedia resources: <https://www.youtube.com/watch?v=GNqosWPPMno>

4.3 Case introduction materials:

“Economic Inequality, Healthcare Access, and Employment in China”

This case explores the interconnected challenges of economic inequality, healthcare access, and employment in China. It examines how these issues impact social stability and evaluates the effectiveness of current policies. Through real-world data and examples, students will analyze the root causes of these livelihood problems and consider how integrated policy reforms can address them to enhance social cohesion and stability.

5. Learning Assessment

Assessment	Assessment Tools	Learning outcome
Assessment of students' critical thinking skills in analyzing current livelihood challenges and identifying root causes	Observation of students' participation in discussions and activities	-Students demonstrate enhanced critical thinking by effectively analyzing the root causes of livelihood issues. - Students critically evaluate potential solutions, showing depth in reasoning and assessment.

Lesson Plan 11

Topic: Building a Moderately Prosperous Society in All Aspects

Chapter: 3

Duration: 2 hours

1. Lesson Objectives

At the end of this lesson, students should be able to:

1.1 Understand the fundamental characteristics of China's transition to a modern socialist country.

1.2 Enhance their skills in interpretation and inference, particularly in understanding the progression from a moderately prosperous society to a modern socialist nation.

2. Content

Building a Moderately Prosperous Society in All Aspects

2.1 Examination of the goals, requirements, and significance of building a moderately prosperous society.

2.2 Analysis of the transition to a modern socialist country by using case Method.

3. Learning Instruction/activities

Learning process	Lecturers' activities	Students' activities
Content Explanation (25 minutes)	Introduce the updated concept of the 'Four Comprehensives' and ask, "Why is the transition from a moderately prosperous society to a modern socialist country significant?" Guide students in interpreting this shift and its implications for China's development.	Interpret the significance of the 'Four Comprehensives' update, focusing on its implications for China's development path.

Learning process	Lecturers' activities	Students' activities
Case Presentation (25 minutes)	Present the case "The Journey to Eradicate Poverty: How China Achieved a Moderately Prosperous Society." Highlight the societal impacts and requirements for this achievement. Guide students in interpreting the case and inferring the broader implications for China's political and social structure.	Analyze the case, focusing on the strategies and outcomes of building a moderately prosperous society. Infer the broader implications of this transition for China's development into a modern socialist nation.
Group Discussion (25 minutes)	Topic: "The Role of Poverty Alleviation in Building a Moderately Prosperous Society." Provide guiding questions such as: "In what ways has poverty alleviation served as a foundation for China's broader goal of becoming a modern socialist country?" and "What are the key challenges in sustaining these efforts?" Facilitate the discussion, encouraging critical analysis and synthesis of ideas.	Engage in discussions, explaining the strategies and outcomes of poverty alleviation efforts. Analyze the effectiveness of these strategies in contributing to a prosperous society.
Synthesis and Reflection (25 minutes)	Summarize key points from the discussions. Encourage students to interpret the characteristics of a modern socialist country and infer their impact on future development in China. Provide prompts for deeper reflection.	Reflect on the discussions and case study. Synthesize key concepts related to the characteristics of a modern socialist country. Infer long-term implications for China's future development.
Assessment and	Assign students to create a concept map outlining the transition	Assign students to create a concept map

Learning process	Lecturers' activities	Students' activities
Feedback (20 minutes)	from a moderately prosperous society to a modern socialist country. Provide feedback on the clarity and depth of their analysis and inferences.	outlining the transition from a moderately prosperous society to a modern socialist country. Provide feedback on the clarity and depth of their analysis and inferences.

4. Instructional Materials:

4.1 Textbook designated by the Ministry of Education for ideological and political courses for university students, PPT

4.2 Videos of the case. TV, projectors, computers to watch the related videos. Multimedia resources: <https://www.youtube.com/watch?v=nsZFHVyJR7E>

4.3 Case introduction materials:

"The Journey to Eradicate Poverty: How China Achieved a Moderately Prosperous Society"

This case study explores the journey and strategies China employed to achieve a moderately prosperous society, known as "Xiao Kang." It examines the comprehensive efforts in poverty alleviation, economic reforms, and social development that have transformed the lives of millions. Students will analyze the key policies, challenges, and successes that contributed to this significant milestone, and will evaluate how these efforts have laid the foundation for China's broader goal of becoming a modern socialist country.

5. Learning Assessment

Assessment	Assessment Tools	Learning outcome
<p>Assessment of students' critical thinking skills in interpreting and inferring the significance of the transition from a moderately prosperous society to a modern socialist country</p>	<p>Observation of students' participation in discussions and activities</p>	<p>- Students demonstrate critical thinking by accurately interpreting the significance of the 'Four Comprehensives' update and inferring its broader impact on China's development.</p> <p>-Students critically assess the characteristics of a modern socialist country, showing depth in their analysis and reasoning</p>

Lesson Plan 12

Topic: Strengthening and Innovating Social Governance to Promote Livelihood Protection

Chapter: 4

Duration: 2 hours

1. Lesson Objectives

At the end of this lesson, students should be able to:

1.1 Understand the significance of innovative social governance in improving people's livelihoods and its role in promoting social stability.

1.2 Enhance their critical thinking skills by analyzing and evaluating the effectiveness of various social governance strategies in addressing complex societal challenges.

2. Content

Strengthening and Innovating Social Governance to Promote Livelihood

2.1 Analyze specific strategies and approaches that have been implemented to enhance people's livelihoods and their underlying principles.

2.2 Evaluation of the effectiveness and impact of how these social governance practices address key social issues.

3. Learning Instruction/activities

Learning process	Lecturers' activities	Students' activities
Content Explanation (25 minutes)	Begin by asking, "What are the major challenges in social governance that impact people's livelihood in China today?" Use this question to introduce the concept of innovative social governance practices aimed at addressing these challenges.	Reflect on and identify the major challenges in social governance that affect livelihoods. Prepare to analyze how these challenges are addressed through innovative governance practices.

	Provide context on why these practices are essential for improving social stability and livelihood protection.	
Case Presentation (25 minutes)	Present the case study "Maple Bridge Experience," emphasizing how it exemplifies successful strategies for strengthening and innovating social governance. Highlight key methods used in the case, such as community engagement, conflict resolution, and integrated social services. Guide students to analyze the effectiveness of these methods in improving livelihoods.	Analyze the case study, focusing on the social governance strategies presented. Evaluate the effectiveness of these strategies in addressing social issues and improving livelihoods, applying critical thinking skills to assess their impact.
Group Discussion (25 minutes)	Topic: "How does the 'Maple Bridge Experience' demonstrate effective social governance?" Organize students into groups and provide guiding questions such as: "What specific innovations were crucial in this case?" and "How can these innovations be applied to other social governance challenges?" Facilitate the discussion, encouraging students to evaluate the methods used critically.	Engage in group discussions, analyzing and explaining the social governance innovations in the case studies—present findings to the class.
Synthesis and Reflection (25 minutes)	Summarize the key insights from the case study and group discussions, focusing on how innovative social governance practices can effectively improve livelihood protection. Encourage students to synthesize their	Reflect on the discussion and case study, synthesizing the key insights into a cohesive understanding of the role of innovative social governance in improving livelihoods. Consider the

	understanding and reflect on the broader implications of these practices for social stability.	long-term impact of these practices on social stability.
Assessment and Feedback (20 minutes)	Reflect on the discussion and case study, synthesizing the key insights into a cohesive understanding of the role of innovative social governance in improving livelihoods. Consider the long-term impact of these practices on social stability.	Create a visual representation that highlights the key strategies and outcomes of social governance innovations. Incorporate peer and lecturer feedback to refine the visual, ensuring it accurately reflects critical insights from the lesson.

4. Instructional Materials:

4.1 Textbook designated by the Ministry of Education for ideological and political courses for university students, PPT

4.2 Videos of the case. TV, projectors, and computers to watch the related videos.

Multimedia resources:

<https://www.youtube.com/watch?v=fnqgTXvuGLo>

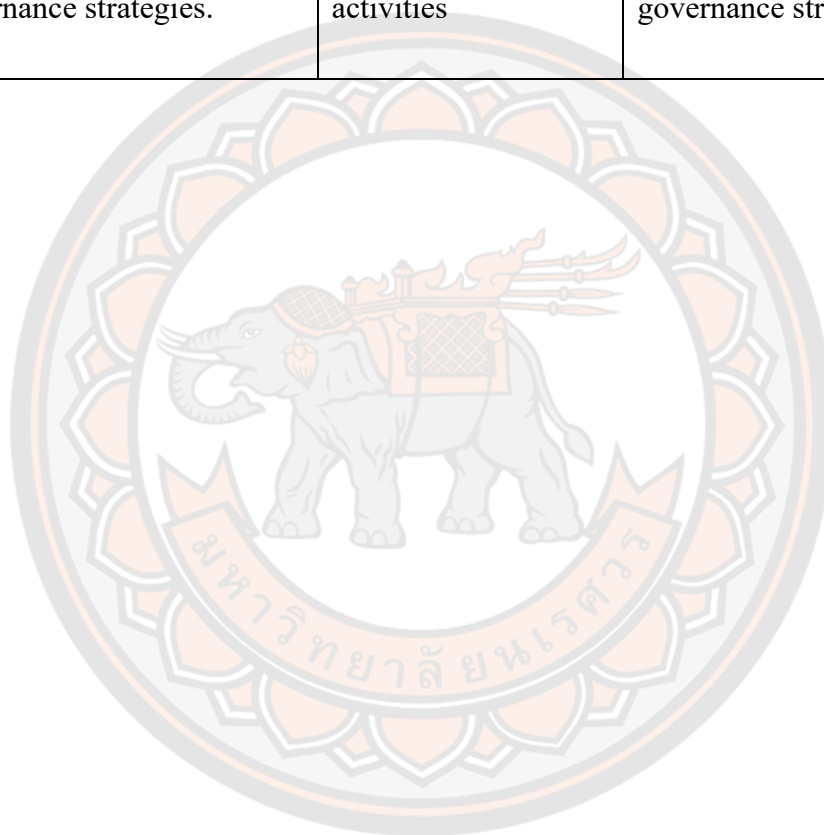
4.3 Case introduction materials: "Maple Bridge Experience"

The "Maple Bridge Experience" is a grassroots innovation in social governance that has played a crucial role in enhancing people's livelihoods by resolving conflicts locally through community involvement and proactive measures. Originating in the 1960s in Zhejiang Province, this approach has evolved to address modern challenges by integrating traditional practices with contemporary technologies. The case highlights the significance of innovative social governance in maintaining social stability and improving public welfare. Through this case, students will enhance their skills in analysis and evaluation by examining how these governance strategies effectively address the complexities of social issues in China's

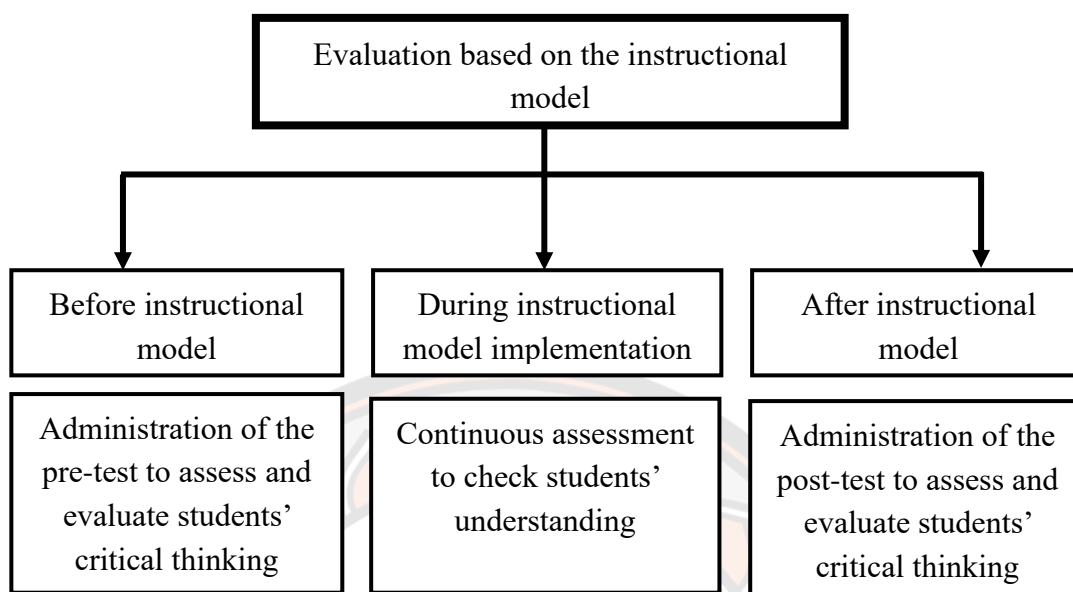
transition to a modern socialist country.

5. Learning Assessment

Assessment	Assessment Tools	Learning outcome
Assessment of students' critical thinking skills in analyzing and evaluating innovative social governance strategies.	Observation of students' participation in discussions and activities	Assessment of students' critical thinking skills in analyzing and evaluating innovative social governance strategies



2.2.9 Assessment of critical thinking



From the above figure, the evaluation of students' critical thinking based on the collaborative and communicative instructional model is identified in three steps: before, during, and after the implementation of the instructional model.

Before implementing the model, a pre-test is administered to assess students' critical thinking. After the pre-test, their scores are recorded.

During the implementation of the model, assessments are continuously conducted to assess students' level of understanding as well as follow up to make sure that stated goals are met.

After implementing the instructional model, the post-test is administered in order to find out whether their critical thinking has improved after learning with the instructional model. The post-test is similar to the pre-test. The results of the post-test and the pre-test are statistically analyzed in order to compare the differences in students' critical thinking before and after learning with the instructional model based on the case method. In a situation where the score of the post-test is higher than the scores of the pre-test, it is described that the students'

critical thinking is improved after learning with the instructional model.

This study posits that customized research instruments, adapted from the CCTST framework, are most suitable for assessing critical thinking among Chinese college students. for assessing critical thinking among Chinese college students.

A set of questions for pre- and post-test will be conducted by the researcher. With the target of using the case method to enhance critical thinking, the content of the questions for the pre-and post-test was extracted in association with the assessment criteria of critical thinking developed by Peter A. Facione (1990). According to Facione (1980), the assessment criteria for critical thinking were composed of 5 elements including Interpretation, Analysis, Evaluation, Inference, and Explanation. A total of 30 items were composed and developed by the author. The content of each item was related to critical scenarios identified as key factors employing critical thinking for all its solutions.

There are 30 questions in the test. The test usually takes around 45-60 minutes to complete. In this research, the components assessed will be

1) Interpretation: This involves understanding and elucidating the meaning of a variety of data, arguments, or experiences about political ideological theories.

2) Analysis: This skill is employed to identify the intended and actual inferential relationships among statements, questions, concepts, descriptions, or other forms of representation intended to express beliefs, judgments, experiences, reasons, information, or opinions within political ideologies.

3)Evaluation: This requires assessing the credibility of sources of information and the claims they make, as well as the logic of the arguments related to political ideologies.

4) Inference: This skill is about drawing reasoned conclusions and hypotheses from the analysis and evaluation of data and evidence about political theories.

5) Explanation: It involves presenting the results of one's reasoning in an organized, systematic way, and justifying one's reasoning process and conclusions within the context of political ideology.

The distribution of assessment components for Critical Thinking is shown as follows:

Table 3 The distribution of Assessment components for Critical Thinking

No.	Assessment Components for Critical Thinking	Items
1	Interpretation	6 (1-6)
2	Analysis	6 (7-12)
3	Evaluation	6 (13-18)
4	Inference	6(19-24)
5	Explanation	6(25-30)

Each of these questions serves to test different aspects of critical thinking, from understanding the implications of a statement to identifying equivalent statements. The rewritten questions maintain the core logical but change the context to different subjects to suit the course content, in order to achieve the purpose of testing students' critical thinking.

2.2.10 Evaluation criterion

The evaluation criterion will be divided into the following parts:

Comparing the results between the pre-test and the post-test using t-test dependent.

CRITICAL THINKING ASSESSMENT TEST FOR CHINESE UNIVERSITY STUDENTS

Interpretation

1. When analyzing government policies in China, which factor is typically emphasized as a primary consideration?

- a) The promotion of individual liberties
- b) International approval and recognition
- c) Social stability and economic development ✓**
- d) Alignment with Western democratic standards

2. In the context of Chinese political discourse, what is the significance of the term "Harmony Society"?

- a) An ideal state of social stability and unity ✓**
- b) A call for Western-style democracy in China
- c) A critique of the government's authoritarian policies
- d) A movement advocating for radical political reforms

3. In the context of Chinese political discourse, what does the term "the Chinese Dream" refer to?

- a) The pursuit of individual wealth and success
- b) The promotion of socialist values and principles
- c) The aspiration for Western-style democracy in China
- d) The realization of China's rejuvenation and national prosperity ✓**

4. When interpreting the concept of "Socialism with Chinese Characteristics" in Chinese political theory, which statement best captures its meaning?

- a) Advocacy for a multi-party democratic system.

- b) A complete rejection of socialist principles in favor of capitalist ideology.
- c) A call for the immediate implementation of Western-style liberal democracy.
- d) Integration of Marxist-Leninist principles with China's unique cultural and economic context. ✓**

5. In the context of Chinese political discourse, if a policy is described as promoting a "harmonious society," what interpretation can be drawn from this term?

- a) Pursuit of aggressive foreign policies.
- b) A focus on maintaining social stability and unity. ✓**
- c) Encouragement of political dissent and opposition.
- d) Promotion of individualism over collective interests.

6. Which of the following best describes the role of the Chinese Communist Party in the governance structure of China?

- a) An independent entity separates from the government
- b) A ceremonial institution with limited influence on policymaking
- c) A minor political party sharing power with multiple other parties
- d) The ruling and leading political party guiding all aspects of governance ✓**

Analysis

7. When examining a government policy in China, which of the following factors should be considered first for critical analysis?

- a) Its popularity among international allies
- b) Its adherence to Marxist-Leninist ideology
- c) Its alignment with Western democratic principles

d) Its impact on social stability and economic development ✓

8. When analyzing the role of the Chinese Communist Party (CCP) in governance, which factor is most significant for understanding its influence?

- a) The CCP's adherence to Western democratic norms.
- b) The level of dissent and opposition within the party.
- c) The popularity of the CCP among the general population.

d) The party's historical achievements and contributions to China's development. ✓

9. In analyzing the effectiveness of China's Belt and Road Initiative (BRI), which aspect is most crucial to consider?

- a) The level of opposition from Western nations to the BRI.
- b) The initiative's impact on global trade and economic development. ✓**
- c) The political motivations behind China's involvement in BRI projects.
- d) The extent of China's military expansion in BRI participant countries.

10. In analyzing China's approach to environmental protection, which aspect is most essential for understanding its policies?

- a) The influence of international pressure on China's environmental policies.
- b) The extent to which China implements sustainable development practices.
- c) The level of public awareness and activism regarding environmental issues.

d) The government's prioritization of economic growth over environmental concerns. ✓

11. In analyzing China's foreign policy objectives, which aspect is most significant for understanding its geopolitical strategy?

a) **China's economic interests and investment in other countries. ✓**

b) China's historical territorial disputes with neighboring countries.

c) The government's pursuit of military dominance in the Asia-Pacific region.

d) The level of cooperation and competition between China and Western powers.

12. When analyzing China's approach to minority rights, which factor is most essential for understanding its policies?

a) The extent to which minority groups are marginalized and discriminated against.

b) The government's efforts to promote cultural diversity and autonomy for minority groups.

c) The influence of international human rights standards on China's treatment of minorities.

d) **The level of political representation and participation of minority groups in government. ✓**

Evaluation

13. When evaluating the effectiveness of a government policy in China, which criterion is most crucial?

a) Its popularity among the public

b) The level of support it receives from foreign governments

c) The policy's alignment with Western democratic principles

d) **The extent to which it achieves stated objectives and addresses societal needs ✓**

14. In the context of Chinese political discourse, what should be considered when evaluating the legitimacy of a political leader?

- a) Their adherence to Western liberal values
- b) Their charisma and public speaking skills
- c) Their popularity on social media platforms
- d) Their ability to maintain social stability and promote national interests✓**

15. In Chinese political discourse, which approach is most conducive to evaluating the impact of economic policies?

- a) Assessing their alignment with Western capitalist principles
- b) Criticizing policies based on their short-term economic outcomes
- c) Examining their effects on social equality and redistribution of wealth✓**
- d) Ignoring economic indicators and focusing solely on political ideology

16. Which approach is most conducive to evaluating the impact of China's foreign policy initiatives?

- a) Analyzing their effects on global economic stability
- b) Assessing their alignment with Western geopolitical interests
- c) Disregarding their significance in favor of domestic political considerations
- d) Examining their implications for China's national security and strategic objectives✓**

17. Which approach is most conducive to evaluating the impact of China's political reforms?

- a) Evaluating reforms solely based on their short-term outcomes
- b) Ignoring reforms in favor of focusing on historical precedents

c) Criticizing reforms based on their deviation from Western democratic standards

d) Analyzing their effects on enhancing government transparency and accountability ✓

18. When evaluating the effectiveness of anti-corruption measures in China, which criterion is most relevant?

a) The transparency and fairness of the judicial process ✓

b) The extent to which high-ranking officials are prosecuted

c) The government's ability to eliminate all instances of corruption

d) The impact of measures on public trust and confidence in the government

Inferences

19. If a political leader in China frequently references "national rejuvenation" in speeches and policies, what inference can be made about their vision for the country?

a) Advocacy for a retreat from global engagement

b) A focus on decentralization and regional autonomy

c) A commitment to strengthening China's position on the world stage ✓

d) Support for dismantling state-owned enterprises in favor of privatization

20. When analyzing government efforts to combat corruption in China, if a significant number of high-ranking officials are prosecuted, what inference can be drawn about the government's stance on corruption?

a) Ineffectiveness of anti-corruption measures

b) Tolerance and acceptance of corrupt practices among officials

c) The government's encouragement of corrupt behavior

d) The determination to govern the Party strictly and combat corruption

✓

21. When analyzing China's Belt and Road Initiative (BRI), if multiple countries sign agreements to participate in infrastructure projects funded by China, what inference can be drawn about China's geopolitical strategy?

- a) A retreat from global engagement and isolationism
- b) Concerns about overextension and economic instability
- c) Pursuit of economic cooperation and geopolitical influence ✓**
- d) Support for multilateral diplomacy and international cooperation

22. If a Chinese government agency releases a white paper outlining plans to promote "ecological civilization," what inference can be drawn about the government's environmental policies?

- a) Neglect of environmental concerns in favor of economic growth
- b) Indifference toward environmental degradation and climate change
- c) Recognition of the importance of environmental protection and sustainability ✓**

d) Emphasis on industrial development at the expense of environmental conservation

23. If a Chinese university organizes a series of lectures on "Marxism in the Contemporary World," what inference can be made about the university's approach to ideological education?

- a) Emphasis on uncritical acceptance of Marxist dogma
- b) Rejection of Marxist ideology in favor of Western liberal values
- c) Support for alternative ideological perspectives and pluralism in thought

d) Promotion of the Marxist principles and their applicability in modern society ✓

24. If a Chinese government official announces plans to implement stricter internet censorship regulations, what inference can be made about the government's attitude toward online discourse?

- a) Support for freedom of expression and open dialogue
- b) Commitment to fostering digital literacy and cyber security
- c) Promotion of transparency and accountability in online communication
- d) Concerns about maintaining social stability and influencing public opinion ✓**

Explanation

25. When explaining the concept of "Socialism with Chinese Characteristics" to a foreign audience, which of the following statements provides the most accurate explanation?

- a) "It advocates for the establishment of a multi-party democracy in China."
- b) "It promotes the complete abolition of socialism in favor of free-market capitalism."
- c) "It refers to the adoption of Western capitalist principles within China's socialist framework."
- d) "It emphasizes the integration of Marxist-Leninist principles with China's unique cultural and economic context." ✓**

26. If asked to explain the role of the Chinese Communist Party (CPC) in governance, which of the following explanations would be most accurate?

- a) "The CPC serves as a ceremonial institution with limited influence on

polycymaking."

b) "The CPC plays a leading and guiding role in all aspects of governance and decision-making in China." ✓

c) "The CPC shares power with multiple other political parties in a coalition government."

d) "The CPC has been marginalized in recent years, allowing for greater political pluralism."

27. When explaining the significance of "Xi Jinping Thought," which explanation would provide the most comprehensive understanding?

a) "It promotes the revival of Confucian values in Chinese society."

b) "It outlines Xi Jinping's political theories and policy initiatives, guiding China's development in the 21st century." ✓

c) "It emphasizes the centralization of power under Xi Jinping's leadership and the pursuit of nationalistic policies."

d) "It represents a departure from traditional Chinese political ideology, advocating for Western democratic values."

28. When explaining the concept of "political discipline" within the Chinese Communist Party, which explanation would be most accurate?

a) "Political discipline encourages open debate and diversity of opinion within the party."

b) "Political discipline promotes transparency and accountability in government decision-making."

c) "Political discipline refers to the suppression of dissenting voices within the party to maintain authoritarian control."

d) "Political discipline emphasizes the importance of adherence to party

ideology and loyalty to party leadership." ✓

29. When explaining the role of environmental protection in Chinese governance, which explanation would provide the most comprehensive understanding?

a) "Environmental protection is a Western concept incompatible with China's developmental goals."

b) "Environmental protection is integral to China's long-term development strategy and national rejuvenation." ✓

c) "Environmental protection is used as a pretext for suppressing economic growth and promoting socialism."

d) "Environmental protection is a secondary concern compared to economic growth and industrial development."

30. If tasked with explaining the rationale behind China's internet censorship policies, which explanation would offer the most nuanced understanding?

a) "Internet censorship is implemented to suppress dissent and control public opinion."

b) "Internet censorship aims to protect national security and prevent the spread of harmful content." ✓

c) "Internet censorship reflects the government's desire to promote digital literacy and cyber security."

d) "Internet censorship is a response to pressure from foreign governments and international organizations."

Item Objective Congruent (IOC) for the Critical Thinking Assessment Test

Evaluated Items		Expert					IOC	Interpretation
		1	2	3	4	5		
1	1. When analyzing government policies in China, which factor is typically emphasized as a primary consideration?							
	a) The promotion of individual liberties							
	b) International approval and recognition	1	1	1	1	0	0.8	Good
	c) Social stability and economic development							
	d) Alignment with Western democratic standards							
2	2. In the context of Chinese political discourse, what is the significance of the term "Harmony Society"?							
	a) An ideal state of social stability and unity							
	b) A call for Western-style democracy in China	1	1	1	1	0	0.8	Good
	c) A critique of the government's authoritarian policies							
	d) A movement advocating for radical political reforms							
3	3. In the context of Chinese political discourse, what does the term "the Chinese Dream" refer to?							
	a) The pursuit of individual wealth and success							
	b) The promotion of socialist values and principles	1	1	1	1	0	0.8	Good
	c) The aspiration for Western-style democracy in China							
	d) The realization of China's rejuvenation and national prosperity							

Evaluated Items		Expert					I O C	Interpr eta tion
		1	2	3	4	5		
4	<p>4. When interpreting the concept of "Socialism with Chinese Characteristics" in Chinese political theory, which statement best captures its meaning?</p> <p>a) Advocacy for a multi-party democratic system.</p> <p>b) A complete rejection of socialist principles in favor of capitalist ideology.</p> <p>c) A call for the immediate implementation of Western-style liberal democracy.</p> <p>d) Integration of Marxist-Leninist principles with China's unique cultural and economic context.</p>	1	1	1	1	0	0.8	Good
5	<p>5. In the context of Chinese political discourse, if a policy is described as promoting a "harmonious society," what interpretation can be drawn from this term?</p> <p>a) Pursuit of aggressive foreign policies.</p> <p>b) A focus on maintaining social stability and unity.</p> <p>c) Encouragement of political dissent and opposition.</p> <p>d) Promotion of individualism over collective interests.</p>	1	1	1	1	0	0.8	Good
6	<p>6. Which of the following best describes the role of the Chinese Communist Party in the governance structure of China?</p> <p>a) An independent entity separates from the government</p> <p>b) A ceremonial institution with</p>	1	1	1	1	0	0.8	Good

Evaluated Items		Expert					I O C	Interpr eta tion
		1	2	3	4	5		
	limited influence on policymaking c) A minor political party sharing power with multiple other parties d) The ruling and leading political party guiding all aspects of governance							
7	7. When examining a government policy in China, which of the following factors should be considered first for critical analysis? a) Its popularity among international allies b) Its adherence to Marxist-Leninist ideology c) Its alignment with Western democratic principles d) Its impact on social stability and economic development	1	1	1	1	0	0.8	Good
8	8. When analyzing the role of the Chinese Communist Party (CCP) in governance, which factor is most significant for understanding its influence? a) The CCP's adherence to Western democratic norms. b) The level of dissent and opposition within the party. c) The popularity of the CCP among the general population. d) The party's historical achievements and contributions to China's development.	1	1	1	1	0	0.8	Good

Evaluated Items		Expert					I O C	Interpr eta tion
		1	2	3	4	5		
9	<p>9. In analyzing the effectiveness of China's Belt and Road Initiative (BRI), which aspect is most crucial to consider?</p> <p>a) The level of opposition from Western nations to the BRI.</p> <p>b) The initiative's impact on global trade and economic development.</p> <p>c) The political motivations behind China's involvement in BRI projects.</p> <p>d) The extent of China's military expansion in BRI participant countries.</p>	1	1	1	1	0	0.8	Good
10	<p>10. In analyzing China's approach to environmental protection, which aspect is most essential for understanding its policies?</p> <p>a) The influence of international pressure on China's environmental policies.</p> <p>b) The extent to which China implements sustainable development practices.</p> <p>c) The level of public awareness and activism regarding environmental issues.</p> <p>d) The government's prioritization of economic growth over environmental concerns.</p>	1	1	1	1	0	0.8	Good
11	<p>11. In analyzing China's foreign policy objectives, which aspect is most significant for understanding its geopolitical strategy?</p> <p>a) China's economic interests and investment in other countries.</p> <p>b) China's historical territorial disputes with neighboring countries.</p> <p>c) The government's pursuit of military dominance in the Asia-Pacific</p>	1	1	1	1	0	0.8	Good

Evaluated Items		Expert					I O C	Interpr eta tion
		1	2	3	4	5		
	region. d) The level of cooperation and competition between China and Western powers.							
12	12. When analyzing China's approach to minority rights, which factor is most essential for understanding its policies? a) The extent to which minority groups are marginalized and discriminated against. b) The government's efforts to promote cultural diversity and autonomy for minority groups. c) The influence of international human rights standards on China's treatment of minorities. d) The level of political representation and participation of minority groups in government.	1	1	1	1	0	0.8	Good
13	13. When evaluating the effectiveness of a government policy in China, which criterion is most crucial? a) Its popularity among the public b) The level of support it receives from foreign governments c) The policy's alignment with Western democratic principles d) The extent to which it achieves stated objectives and addresses societal needs	1	1	1	1	0	0.8	Good

Evaluated Items		Expert					I O C	Interpr eta tion
		1	2	3	4	5		
14	<p>14. In the context of Chinese political discourse, what should be considered when evaluating the legitimacy of a political leader?</p> <p>a) Their adherence to Western liberal values</p> <p>b) Their charisma and public speaking skills</p> <p>c) Their popularity on social media platforms</p> <p>d) Their ability to maintain social stability and promote national interests</p>	1	1	1	1	0	0.8	Good
15	<p>15. In Chinese political discourse, which approach is most conducive to evaluating the impact of economic policies?</p> <p>a) Assessing their alignment with Western capitalist principles</p> <p>b) Criticizing policies based on their short-term economic outcomes</p> <p>c) Examining their effects on social equality and redistribution of wealth</p> <p>d) Ignoring economic indicators and focusing solely on political ideology</p>	1	1	1	1	0	0.8	Good
16	<p>16. Which approach is most conducive to evaluating the impact of China's foreign policy initiatives?</p> <p>a) Analyzing their effects on global economic stability</p> <p>b) Assessing their alignment with Western geopolitical interests</p> <p>c) Disregarding their significance in favor of domestic political considerations</p>	1	1	1	1	0	0.8	Good

Evaluated Items		Expert					I O C	Interpr eta tion
		1	2	3	4	5		
	d) Examining their implications for China's national security and strategic objectives							
17	<p>17. Which approach is most conducive to evaluating the impact of China's political reforms?</p> <p>a) Evaluating reforms solely based on their short-term outcomes</p> <p>b) Ignoring reforms in favor of focusing on historical precedents</p> <p>c) Criticizing reforms based on their deviation from Western democratic standards</p> <p>d) Analyzing their effects on enhancing government transparency and accountability</p>	1	1	1	1	0	0.8	Good
18	<p>18. When evaluating the effectiveness of anti-corruption measures in China, which criterion is most relevant?</p> <p>a) The transparency and fairness of the judicial process</p> <p>b) The extent to which high-ranking officials are prosecuted</p> <p>c) The government's ability to eliminate all instances of corruption</p> <p>d) The impact of measures on public trust and confidence in the government</p>	1	1	1	1	0	0.8	Good
19	<p>19. If a political leader in China frequently references "national rejuvenation" in speeches and policies, what inference can be made about their vision for the country?</p> <p>a) Advocacy for a retreat from global engagement</p>	1	1	1	1	0	0.8	Good

Evaluated Items		Expert					I O C	Interpr eta tion
		1	2	3	4	5		
	b) A focus on decentralization and regional autonomy c) A commitment to strengthening China's position on the world stage d) Support for dismantling state-owned enterprises in favor of privatization							
20	What is the most effective way for her to deploy her attention and regulate her emotions? a) Gather evidence that she was vilified by Xiaofang. b) Screaming at the sky. c) Focus on completing her tasks. d) Go to a gym and hit a punch bag.	1	1	1	1	0	0.8	Good
21	21. When analyzing China's Belt and Road Initiative (BRI), if multiple countries sign agreements to participate in infrastructure projects funded by China, what inference can be drawn about China's geopolitical strategy? a) A retreat from global engagement and isolationism b) Concerns about overextension and economic instability c) Pursuit of economic cooperation and geopolitical influence ✓ d) Support for multilateral diplomacy and international cooperation	1	1	1	1	0	0.8	Good
22	22. If a Chinese government agency releases a white paper outlining plans to promote "ecological civilization," what inference can be drawn about the government's environmental policies? a) Neglect of environmental concerns	1	1	1	1	0	0.8	Good

Evaluated Items		Expert					I O C	Interpr eta tion
		1	2	3	4	5		
	<p>in favor of economic growth</p> <p>b) Indifference toward environmental degradation and climate change</p> <p>c) Recognition of the importance of environmental protection and sustainability ✓</p> <p>d) Emphasis on industrial development at the expense of environmental conservation</p>							
23	<p>23. If a Chinese university organizes a series of lectures on "Marxism in the Contemporary World," what inference can be made about the university's approach to ideological education?</p> <p>a) Emphasis on uncritical acceptance of Marxist dogma</p> <p>b) Rejection of Marxist ideology in favor of Western liberal values</p> <p>c) Support for alternative ideological perspectives and pluralism in thought</p> <p>d) Promotion of the Marxist principles and their applicability in modern society</p>	1	1	1	1	0	0.8	Good
24	<p>24. If a Chinese government official announces plans to implement stricter internet censorship regulations, what inference can be made about the government's attitude toward online discourse?</p> <p>a) Support for freedom of expression and open dialogue</p> <p>b) Commitment to fostering digital literacy and cyber security</p> <p>c) Promotion of transparency and accountability in online communication</p>	1	1	1	1	0	0.8	Good

Evaluated Items		Expert					I O C	Interpr eta tion
		1	2	3	4	5		
	d) Concerns about maintaining social stability and influencing public opinion							
25	<p>25. When explaining the concept of "Socialism with Chinese Characteristics" to a foreign audience, which of the following statements provides the most accurate explanation?</p> <p>a) "It advocates for the establishment of a multi-party democracy in China." b) "It promotes the complete abolition of socialism in favor of free-market capitalism." c) "It refers to the adoption of Western capitalist principles within China's socialist framework." d) "It emphasizes the integration of Marxist-Leninist principles with China's unique cultural and economic context."</p>	1	1	1	1	0	0.8	Good
26	<p>26. If asked to explain the role of the Chinese Communist Party (CPC) in governance, which of the following explanations would be most accurate?</p> <p>a) "The CPC serves as a ceremonial institution with limited influence on policymaking." b) "The CPC plays a leading and guiding role in all aspects of governance and decision-making in China." c) "The CPC shares power with multiple other political parties in a coalition government." d) "The CPC has been marginalized in</p>	1	1	1	1	0	0.8	Good

Evaluated Items		Expert					I O C	Interpr eta tion
		1	2	3	4	5		
	recent years, allowing for greater political pluralism."							
27	<p>27. When explaining the significance of "Xi Jinping Thought," which explanation would provide the most comprehensive understanding?</p> <p>a) "It promotes the revival of Confucian values in Chinese society."</p> <p>b) "It outlines Xi Jinping's political theories and policy initiatives, guiding China's development in the 21st century."</p> <p>c) "It emphasizes the centralization of power under Xi Jinping's leadership and the pursuit of nationalistic policies."</p> <p>d) "It represents a departure from traditional Chinese political ideology, advocating for Western democratic values."</p>	1	1	1	1	0	0.8	Good
28	<p>28. When explaining the concept of "political discipline" within the Chinese Communist Party, which explanation would be most accurate?</p> <p>a) "Political discipline encourages open debate and diversity of opinion within the party."</p> <p>b) "Political discipline promotes transparency and accountability in government decision-making."</p> <p>c) "Political discipline refers to the suppression of dissenting voices within the party to maintain authoritarian control."</p> <p>d) "Political discipline emphasizes the importance of adherence to</p>	1	1	1	1	0	0.8	Good

	Evaluated Items	Expert					I O C	Interpr eta tion
		1	2	3	4	5		
	party ideology and loyalty to party leadership."							
29	<p>29. When explaining the role of environmental protection in Chinese governance, which explanation would provide the most comprehensive understanding?</p> <p>a) "Environmental protection is a Western concept incompatible with China's developmental goals."</p> <p>b) "Environmental protection is integral to China's long-term development strategy and national rejuvenation."</p> <p>c) "Environmental protection is used as a pretext for suppressing economic growth and promoting socialism."</p> <p>d) "Environmental protection is a secondary concern compared to economic growth and industrial development."</p>	1	1	1	1	0	0.8	Good
30	<p>30. If tasked with explaining the rationale behind China's internet censorship policies, which explanation would offer the most nuanced understanding?</p> <p>a) "Internet censorship is implemented to suppress dissent and control public opinion."</p> <p>b) "Internet censorship aims to protect national security and prevent the spread of harmful content."</p> <p>c) "Internet censorship reflects the government's desire to promote digital</p>	1	1	1	1	0	0.8	Good

Evaluated Items	Expert					I O C	Interpr eta tion
	1	2	3	4	5		
literacy and cyber security." d) "Internet censorship is a response to pressure from foreign governments and international organizations."							



3.7 Students' Satisfaction Questionnaire

This section of the questionnaire seeks to explore the level of student's satisfaction with the instructional model. Respond to each statement by checking one of the boxes as follows:

1= not satisfied at all, 2= satisfied to a less extent, 3= fairly satisfied, 4= satisfied, 5 = highly satisfied

No.	Evaluated Items	Level of Satisfaction				
		5	4	3	2	1
Learning process						
1	The learning process is clear, fun, and easy to understand.					
2	The instructions encourage critical thinking					
3	Group discussions are promoted, enhancing critical thinking.					
4	There are opportunities for critical thinking.					
Content						
5	The content is relevant and challenges my critical thinking.					
6	The content is relevant and challenges my critical thinking.					
Learning activities						
7	Activities require the application of critical thinking.					
8	Learning activities foster critical thinking.					
9	Tasks are varied and intellectually critical thinking.					
Learning atmosphere						
10	The classroom environment supports open and critical discussions.					
11	A positive classroom atmosphere enabled us to carry out our learning activities successfully.					

No.	Evaluated Items	Level of Satisfaction				
		5	4	3	2	1
Instructional materials						
12	Instructional materials provoke deeper analysis and interpretation.					
The role of the lecture						
13	The instructor facilitates critical thinking through questioning and guidance.					
Evaluation						
14	Evaluation evaluates the depth of understanding and reasoning.					
15	Feedback from evaluation contributes to improving my critical thinking.					
Critical thinking development						
16	I feel more confident in my critical thinking abilities.					
17	My critical thinking has improved.					
18	I am better at articulating my thoughts and critical thinking clearly.					

Thank you

Item Objective Congruence (IOC) for Students' Satisfaction Questionnaire

No.	Evaluated Items	Expert					IOC	Interpretation
		1	2	3	4	5		
A. Learning process								
1	The learning process is clear, fun, and easy to understand.	1	1	1	1	1	1.00	Good
2	The instructions encourage critical thinking	1	1	1	1	1	1.00	Good
3	Group discussions are promoted, enhancing critical thinking.	1	1	1	1	1	1.00	Good
4	There are opportunities for critical thinking.	1	1	1	1	1	1.00	Good
B. content								
5	The content is relevant and challenges my critical thinking.	1	1	1	1	1	1.00	Good
6	The content is relevant and challenges my critical thinking.	1	1	1	1	1	1.00	Good
C. Learning activities								
7	Activities require the application of critical thinking.	1	1	1	1	1	1.00	Good
8	Learning activities foster critical thinking.	1	1	1	1	1	1.00	Good
9	Tasks are varied and intellectually critical thinking.	1	1	1	1	1	1.00	Good
D. Learning Atmosphere								
10	The classroom environment supports open and critical discussions.	1	1	1	1	1	1.00	Good
11	A positive classroom atmosphere enabled us to carry out our learning activities successfully.	1	1	1	1	1	1.00	Good
E. Instructional materials								
12	Instructional materials provoke	1	1	1	1	1	1.00	Good

No.	Evaluated Items	Expert					IOC	Interpretation
		1	2	3	4	5		
	deeper analysis and interpretation.							
F. The role of the lecture								
13	The lecture facilitates critical thinking through questioning and guidance.	1	1	1	1	1	1.00	Good
G. Evaluation								
14	Evaluation evaluates the depth of understanding and reasoning.	1	1	1	1	1	1.00	Good
15	Feedback from evaluation contributes to improving my critical thinking.	1	1	1	1	1	1.00	Good
H. Critical thinking development								
16	I feel more confident in my critical thinking abilities.	1	1	1	1	1	1.00	Good
17	My critical thinking has improved.							
18	I am better at articulating my thoughts and critical thinking clearly.							

The P-Value of Critical thinking test

NO.	Question																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	1	0	1	1	0	0	0	0	1	0	0	1	1	1	1	1	1	0	0	0	1	1	0	1	0	1	0	1	1	1	0
2	0	0	1	0	0	1	0	1	0	1	0	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	1	1	0	0
3	1	1	1	1	1	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0	1	0	0	0	0	1	0	0	1	1	1
4	0	1	1	0	0	1	0	1	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	0
5	0	1	1	1	0	0	0	0	1	1	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	1	0	1	1	0	1
6	1	0	0	1	1	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	1	1	0	1	0	0	0
7	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	1	1	0	0	0	0	1	0	0	0	0	0	1	1
8	0	1	1	1	0	1	0	1	0	0	1	0	1	1	0	0	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1
9	1	0	1	1	1	0	1	0	1	1	1	0	1	0	1	1	1	0	1	0	1	1	0	1	0	0	0	0	0	1	1
10	0	1	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	1	1	0	0	0	1	1	0	0	0	0	1	0	1
11	1	0	1	0	1	1	0	1	0	0	1	0	0	1	0	1	0	1	1	1	1	1	1	1	1	0	1	0	0	1	0
12	1	0	1	1	1	0	1	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	1	1
13	0	1	0	1	1	0	1	0	1	0	1	1	0	0	1	0	0	1	1	1	1	0	0	1	0	1	0	1	1	1	1
14	1	0	0	1	0	0	0	0	1	1	1	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1
15	0	1	0	1	0	0	0	0	1	1	0	0	1	1	0	1	1	0	1	0	1	0	1	0	1	0	0	0	1	0	0
16	1	0	0	0	0	1	0	1	1	0	1	1	1	0	0	0	0	1	1	1	1	0	1	0	1	0	1	1	0	1	0
17	1	1	0	1	1	1	0	0	0	1	1	1	1	1	1	1	0	1	1	0	0	1	0	1	0	1	0	1	0	1	1
18	0	0	0	1	1	1	0	1	0	1	1	0	1	1	0	0	1	1	1	1	1	0	1	0	1	0	0	1	1	0	0
19	1	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	1	1	1
20	0	0	0	1	1	1	0	0	1	0	0	1	1	1	0	0	0	0	1	1	1	1	1	1	1	0	0	1	0	0	1
Total	10	10	10	13	9	8	5	6	10	9	12	10	13	11	9	10	8	12	16	8	9	10	10	5	4	11	12	10	13	12	
P-value	0.5	0.5	0.5	0.65	0.45	0.4	0.25	0.3	0.5	0.45	0.6	0.5	0.65	0.55	0.45	0.5	0.4	0.6	0.8	0.4	0.45	0.5	0.5	0.5	0.2	0.55	0.6	0.5	0.65	0.6	

Pre-test score

Students' number	Interpretation (6)	Analysis (6)	Evaluation (6)	Explanation (6)	Inference (6)	Total (25)
1	6	6	4	5	1	22
2	2	3	2	3	6	16
3	3	4	3	3	5	18
4	6	5	5	5	4	25
5	2	1	6	4	1	14
6	6	5	1	3	5	20
7	2	4	5	1	1	13
8	3	4	6	1	3	17
9	2	4	4	2	1	13
10	2	5	5	3	6	21
11	2	4	1	4	1	12
12	1	6	6	5	1	19
13	1	5	6	5	6	23
14	1	4	6	4	4	19
15	3	6	4	6	1	20
16	6	3	5	2	6	22
17	5	4	4	5	5	23
18	2	5	2	3	3	15
19	2	2	2	2	3	11
20	3	4	5	3	1	16
21	2	2	4	1	4	13
22	1	6	1	2	4	14
23	5	3	6	5	5	24
24	4	1	6	2	1	14
25	2	3	5	2	3	15
26	1	4	2	2	4	13
27	4	2	2	6	1	15
28	5	2	6	2	4	19
29	4	5	5	3	6	23
30	1	2	4	1	4	12
31	6	5	2	4	3	20
32	6	6	4	2	2	20
33	4	1	2	5	5	17
34	3	4	2	2	5	16

35	4	5	3	5	3	20
36	2	1	2	3	4	12
37	2	2	1	5	1	11
38	6	2	5	4	4	21
39	3	1	5	1	3	13
40	1	2	4	5	5	17
41	2	6	2	5	4	19
42	6	6	1	1	5	19
43	5	1	4	4	1	15
44	6	5	3	2	5	21
45	2	5	4	5	5	21
46	2	1	4	1	2	10
47	6	5	2	3	2	18
48	1	5	3	1	6	16
49	4	6	4	3	2	19
50	2	5	1	4	5	17
51	6	3	1	2	3	15

Post-test score

Students' number	Interpretation (6)	Analysis (6)	Evaluation (6)	Explanation (6)	Inference (6)	Total (25)
1	6	6	6	6	4	28
2	3	4	3	4	6	20
3	6	6	4	6	6	28
4	6	6	6	6	5	29
5	4	4	6	5	3	22
6	6	6	4	4	6	26
7	3	6	6	4	4	23
8	5	5	6	2	6	24
9	4	6	5	4	4	23
10	3	6	6	6	6	27
11	3	6	2	5	3	19
12	3	6	6	6	3	24
13	4	6	6	6	6	28
14	3	5	6	5	6	25
15	4	6	6	6	3	25
16	6	4	6	4	6	26
17	6	6	6	6	6	30
18	4	6	4	6	6	26
19	5	3	5	3	6	22
20	5	5	6	4	4	24
21	4	3	6	3	6	22
22	2	6	2	3	5	18
23	6	4	6	6	6	28
24	5	3	6	3	2	19
25	4	4	6	5	6	25
26	4	6	4	3	6	23
27	5	3	5	6	4	23
28	6	5	6	4	6	27
29	6	6	6	4	6	28
30	2	3	6	2	5	18
31	6	6	3	6	4	25
32	6	6	6	5	3	26
33	5	2	3	6	6	22
34	4	5	4	4	6	23
35	6	6	6	6	5	29

Students' number	Interpretation (6)	Analysis (6)	Evaluation (6)	Explanation (6)	Inference (6)	Total (25)
36	5	4	3	5	5	22
37	5	5	4	6	2	22
38	6	3	6	6	6	27
39	5	2	6	4	5	22
40	4	4	6	6	6	26
41	5	6	3	6	6	26
42	6	6	3	2	6	23
43	6	4	6	6	3	25
44	6	6	6	3	6	27
45	5	6	5	6	6	28
46	4	3	5	3	5	20
47	6	6	3	6	5	26
48	2	6	5	2	6	21
49	5	6	5	4	3	23
50	4	6	4	6	6	26
51	6	5	4	5	6	26

Combined Pre-test and post-test

Students' Number	Total pre-test	Total post-test
1	22	28
2	16	20
3	18	28
4	25	29
5	14	22
6	20	26
7	13	23
8	17	24
9	13	23
10	21	27
11	12	19
12	19	24
13	23	28
14	19	25
15	20	25
16	22	26
17	23	30
18	15	26
19	11	22
20	16	24
21	13	22
22	14	18
23	24	28
24	14	19
25	15	25
26	13	23
27	15	23
28	19	27
29	23	28
30	12	18
31	20	25
32	20	26
33	17	22
34	16	23
35	20	29
36	12	22
37	11	22

Students' Number	Total pre-test	Total post-test
38	21	27
39	13	22
40	17	26
41	19	26
42	19	23
43	15	25
44	21	27
45	21	28
46	10	20
47	18	26
48	16	21
49	19	23
50	17	26
51	15	26

