



**ENHANCING STUDENTS' SELF-DIRECTED LEARNINGABILITY IN
POLITICAL COURSES THROUGH SMALL PRIVATE ONLINE
COURSE: A CASE STUDY OF FUZHOU SOFTWARE VOCATIONAL
AND TECHNICAL COLLEGE**



GUANHUA YAO

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS IN EDUCATION AND SOCIETY
INSTITUTE OF SCIENCE INNOVATION AND CULTURE
RAJAMANGALA UNIVERSITY OF TECHNOLOGY KRUNGTHEP
ACADEMIC YEAR 2024
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 Rajamangala University of Technology Krungthep in Partial Fulfillment
 of the Requirements for the Master's Degree

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Academic

Year 2024

ABSTRACT

This study investigated the impact of the Small Private Online Course (SPOC) teaching model on self-directed learning among second-year Political Science students at Fuzhou Software Vocational and Technical College. The research focused on three main objectives: (1) to assess how the SPOC model enhances self-directed learning abilities, (2) to evaluate differences in academic performance before and after its implementation, and (3) to examine students' perspectives on the model. The sample included 50 randomly selected students from one of 20 classrooms, with 1,000 students enrolled in the 2024 academic year. The study used a cluster-randomized sampling method and quantitative analysis, employing paired-samples t-tests and measures of central tendency (mean, standard deviation, and variance). Data were collected using questionnaires, lesson plans, and perspective surveys. The results showed strong agreement among students regarding the SPOC model's effectiveness in enhancing self-directed learning, with an overall mean score of 4.31 (S.D. = 0.71). Academic performance significantly improved after the SPOC intervention, with post-test scores averaging 90.6 compared to 70.1 before the intervention. Both the standard deviation and the variance decreased, indicating more consistent performance. A paired t-test ($t = 12.17, p < 0.05$) confirmed the statistical significance of these improvements. Furthermore, students' perspectives on the SPOC model were positive, with a satisfaction level of $\bar{x} = 4.28$ (S.D. = 0.04). The findings highlight the SPOC model's effectiveness in fostering self-directed learning and enhancing academic achievement in political science. Future studies could explore its application across various academic levels and subjects.

Keywords: Political Science Education, Cluster Random Sampling, Quantitative Analysis, Self-Directed Learning

ACKNOWLEDGEMENTS

I would like to express my deepest gratitude to all those who have provided me with unwavering support throughout this research project.

First and foremost, my heartfelt thanks go to my supervisor, Associate Professor Dr. Saifon Songsingchai, for your continuous guidance, insightful feedback, and unwavering support throughout this journey. Under your guidance, my English proficiency and academic capabilities have significantly grown. Your professional knowledge and encouragement have served as a vital source of motivation for my continuous progress.

Furthermore, I am deeply grateful to my family and friends for their unwavering support and understanding throughout this endeavor. Your patience, encouragement, and trust in me have been a tremendous source of motivation. With your support, I remained resilient and overcame various challenges to complete this research.

Additionally, I would like to extend my sincere appreciation to my classmates, Freya and Linda, for their collaborative spirit and the inspiring academic environment they created. Our constructive discussions and camaraderie greatly enriched my research experience, providing me with valuable insights and inspiration.

Special thanks are also extended to the 2024 batch of Political Science students from Fuzhou Software Vocational and Technical College for their active participation in this study. The valuable data and insights you provided were instrumental in making this research possible. Without your involvement, this project would not have been achievable.

Lastly, I am grateful to Fuzhou Software Vocational and Technical College and other funding institutions for their financial and administrative support, which made this research a reality. Thank you for providing the necessary resources and facilities that enabled us to complete this project. Once again, I would like to extend my heartfelt thanks to everyone who has supported and assisted me along the way.

Guanhua YAO

CONTENTS

	Page
APPROVAL PAGE	i
ABSTRACT.....	ii
ACKNOWLEDGEMENTS	iii
CONTENTS.....	iv
LIST OF TABLES	vii
LIST OF FIGURES	viii
CHAPTER I INTRODUCTION	1
1.1 Background And Rationale.....	1
1.2 Research Questions	2
1.3 Research Hypotheses	2
1.4 Research Objectives.....	3
1.5 Scope and Limitations of the Research Study	3
1.5.1 Scope of the Study	3
1.5.2 Limitation of the Research Study	3
1.6 Research Framework	4
1.7 Significance of the Study	4
1.7.1 Theoretical Significance	4
1.7.2 Practical Implications.....	5
1.8 Definition of Key Terms	5
CHAPTER II LITERATURE REVIEW.....	6
2.1 Related Theories	6
2.1.1 Mastery Learning Theory	6
2.1.2 Constructivism Learning Theory	7
2.1.3 Connectivism Learning Theory	9
2.2 Related Studies.....	11
2.2.1 Definition and Characteristics of the SPOC Teaching Model	11
2.2.2 Application of SPOC Teaching Model in Various Disciplines	12
2.2.3 Application of SPOC Teaching Model in Political Courses.....	14

2.2.4 The Effectiveness and Shortcomings of the SPOC Teaching Model in Improving Students' Self-directed Learning Ability.....	15
CHAPTER III RESEARCH METHODOLOGY	17
3.1 Research Methodology	17
3.1.1 Methodology	17
3.1.2 Research Type.....	17
3.1.3 Research Procedures	17
3.2 Research Population and Samples	19
3.2.1 Population	19
3.2.2 Samples	19
3.2.3 Sampling Methods	19
3.3 Data Collection	20
3.3.1 Table for Timetable for Collecting Data.....	20
3.3.2 Before Learning the Questionnaire.....	20
3.3.3 After Learning the Questionnaire	20
3.3.4 Data Collection Tool.....	20
3.4 Research Instrument.....	21
3.4.1 To Answer Research Question 1.....	21
3.4.2 Student Self - Learning Ability Questionnaire	21
3.4.2 Lesson Plan and Test	21
3.4.2.1 Lesson Plan	21
3.4.2.2 Test.....	24
3.4.3 Student Perspectives Questionnaire.....	25
3.5 Reliability and Validity Testing of The Instrument.....	27
3.5.1 Student Self-Directed Learning Ability Questionnaire.....	28
3.5.2 Lesson Plan	29
3.5.3 The Test	30
3.5.4 Student Perspectives Questionnaire.....	31
3.6 Data Analysis	32
3.6.1 Descriptive Statistics.....	32
3.6.2 Inferential Statistics	33
CHAPTER IV ANALYSIS RESULT	34

4.1 Research Findings.....	34
CHAPTER V CONCLUSION AND DISCUSSION.....	47
5.1 Conclusion	47
5.2 Discussion.....	48
5.3 Implications for Practice	54
REFERENCES.....	57
APPENDICES	59



LIST OF TABLES

	Page
Table 3.1 Table for Timetable for Collecting Data.....	20
Table 3.2 Student Perspectives Questionnaire.....	26
Table 3.3 Lesson Plan 1.5 (IOC) for Answer RQ.2.....	28
Table 4.1 Experimental Group Table (Pre)	36
Table 4.2 Experimental Group Table (Post)	38
Table 4.3 Student Political Proficiency Test Score	41
Table 4.4 Paired Sample t-test Results (Calculated using Excel)	43
Table 4.5 Experimental Group Perspectives Evaluation	44



LIST OF FIGURES

	Page
Figure 1.1 Research Framework.....	4



CHAPTER I

INTRODUCTION

1.1 Background and Rationale

In recent years, the rapid development of information technology has led to significant changes in educational methodologies and environments. Among the various innovative teaching methods is the Small Private Online Course (SPOC) (Kang, 2014), which has emerged as a practical approach to enhance learning experiences and outcomes. Unlike Massive Open Online Courses (MOOCs) (Zhi, 2014), which target a broad audience, SPOCs are designed for a smaller, more specific group of learners, offering a more personalized and interactive learning environment. The necessity of this study stems from several key factors that affect the current state of political education in vocational colleges:

Firstly, vocational education, particularly in political courses, faces unique challenges. Students in vocational colleges often struggle with Self-Directed Learning due to a lack of motivation, engagement, and effective study strategies. Traditional teaching methods in political courses often rely on lecture-based, teacher-centered approaches, which may not effectively address the diverse needs and learning styles of vocational students. This situation calls for a shift towards more student-centered and technology-enhanced learning approaches (Zhao & Hu, 2016).

Secondly, Fuzhou Software Vocational and Technical College, as a prominent institution in vocational education, provides a pertinent context for exploring the implementation of SPOC in political courses. The college's commitment to integrating advanced educational technologies into its curriculum makes it an ideal setting for investigating the potential benefits of SPOC.

Thirdly, the rationale behind this study is to examine how the SPOC teaching model can enhance the Self-Directed Learning ability of vocational college students in political courses. By focusing on a specific institution and course type, this research aims to provide insights into the practical application of SPOC in vocational education and to contribute to the broader discourse on educational innovation and student-centered learning. This study investigated the effectiveness of SPOC in

promoting self-directed learning, enhancing academic performance, and enhancing student engagement in political courses.

This study uses Fuzhou Software Vocational and Technical College as a case study to analyze in detail the impact of SPOC on students' self-directed learning ability. Through this research, we aim to offer valuable insights for educators and policymakers seeking to enhance vocational education in the digital age.

1.2 Research Questions

To achieve the objectives of this study, the following research questions were formulated:

1. How does the SPOC teaching model enhance students' self-directed learning abilities in political courses?
2. To what extent is the SPOC teaching model implemented in political courses, and how does its implementation affect students' self-directed learning abilities?
3. What are students' perspectives towards the SPOC teaching model in enhancing their self-directed learning abilities in political courses?

1.3 Research Hypotheses

Based on the research question, the following research hypotheses are proposed:

1. The implementation of the SPOC teaching model significantly enhanced students' self-directed learning abilities in political courses at Fuzhou Software Vocational and Technical College.
2. The level of implementation of the SPOC teaching model in political courses positively correlated with the degree of improvement in students' self-directed learning learning ability.
3. Students had a positive perception of the SPOC teaching model's impact on their ability to self-direct learning in political courses.

1.4 Research Objectives

1. To investigate the effect of the SPOC teaching model in enhancing students' self-directed learning abilities in political courses at Fuzhou Software Vocational and Technical College.
2. To investigate the SPOC teaching model implementation in political courses and analyze its impact on students' self-directed learning abilities.
3. To explore students' perspectives towards the SPOC teaching model in promoting their self-directed learning abilities in political courses.

1.5 Scope and Limitations of the Research Study

1.5.1 Scope of the Study

1. Focus on the SPOC Teaching Model: This study specifically investigates the impact of the Small Private Online Course (SPOC) teaching model on students' self-directed learning abilities. The focus is on how this model can enhance self-learning in political courses.
2. Target Population: The study concentrates on students enrolled in political courses at Fuzhou Software Vocational and Technical College. These students serve as the primary subjects for evaluating the effectiveness of the SPOC teaching model.
3. Geographic Location: The research is conducted within the context of Fuzhou Software Vocational and Technical College, providing a specific setting to examine the implementation and outcomes of the SPOC teaching model.

1.5.2 Limitations of the Research Study

1. The study's sample is confined to students in political courses at a single institution. The limited sample size and lack of diversity may affect the breadth and applicability of the results.
2. Implementation Variability: The level of implementation of the SPOC teaching model might vary across different instructors and courses, leading to inconsistencies that could impact the study's findings.
3. External Variables: Other external factors, such as students' circumstances, prior educational background, and individual learning preferences,

could influence their self-directed learning ability and perceptions of the SPOC teaching model, potentially confounding the results.

1.6 Research Framework

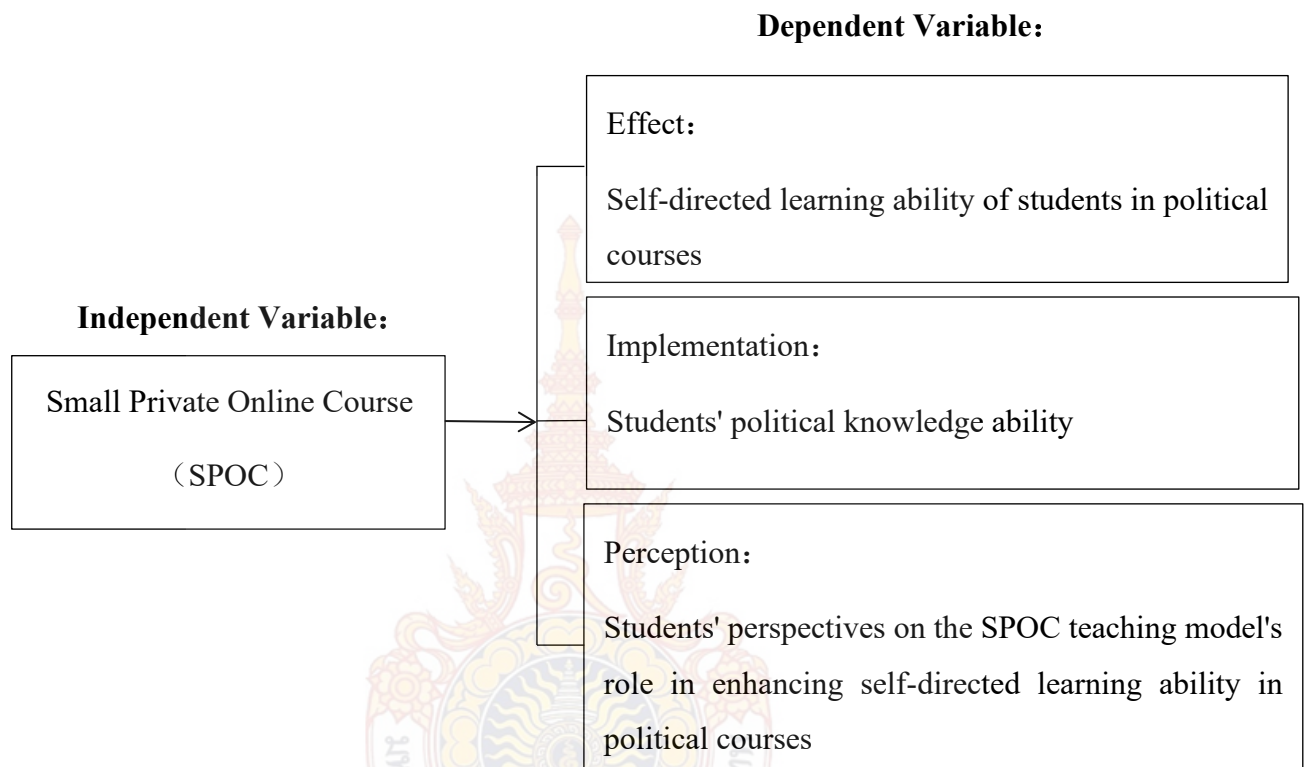


Figure 1.1 Research Framework

1.7 Significance of the Study

1.7.1 Theoretical Significance

This study contributes to the existing literature on online learning and self-learning ability in higher education, particularly in the context of vocational colleges and political courses. By examining the effectiveness of the SPOC teaching model, this study enriches our understanding of how blended learning can cultivate students' self-learning skills. It also elucidates the factors that influence the successful implementation of SPOC in specific educational environments, thereby increasing the theoretical foundation of educational technology.

1.7.2 Practical Implications

From a practical perspective, this study offers valuable insights for vocational college educators and managers seeking to enhance students' self-directed learning abilities through innovative teaching methods. The research results can guide the design and implementation of the SPOC teaching model to meet the unique needs of vocational college students in political courses. By identifying the key factors that contribute to SPOC's success, this study provides practical recommendations for overcoming challenges and maximizing its advantages. In addition, the study highlights the potential of SPOC in enhancing student engagement, motivation, and academic performance, ultimately leading to improved educational outcomes and career prospects for vocational college students.

1.8 Definition of Key Terms

SPOC (Small Private Online Course): A blended learning model that combines the accessibility of online learning with the interactivity of face-to-face teaching. SPOCs typically admit a limited number of students and require prerequisites for participation.

Vocational College: An educational institution that offers practical, skill-oriented, and career-focused courses aimed at preparing students for specific jobs or careers.

Self-Directed Learning Ability: The individual's ability to independently acquire knowledge and skills through self-learning activities. It encompasses motivation, self-regulation, and the ability to set learning goals, plan effective learning strategies, monitor progress, and assess learning outcomes.

Political Courses: Political courses are a crucial component of the vocational college curriculum, designed to help students understand the national political system, policies, regulations, current affairs, and politics, while cultivating their political literacy and social responsibility. These courses usually cover the fundamental theories of Marxism, the theoretical system of socialism with Chinese characteristics, ideological and moral cultivation, and legal foundations.

CHAPTER II

LITERATURE REVIEW

2.1 Related Theories

The theoretical framework of this study is primarily based on three fundamental theories: mastery learning, constructivist learning, and connectionist learning.

2.1.1 Mastery Learning Theory

The Mastery Learning Theory, proposed by American educational psychologist Benjamin S. Bloom, advocates a teaching process that provides continuous feedback and correction, enabling students to master the material. This theory emphasizes individual differences among students, supports personalized teaching and timely feedback, and helps students overcome learning difficulties. In the SPOC (Small Private Online Course) teaching model, Mastery Learning Theory provides a theoretical foundation for improving students' learning outcomes through personalized learning paths and instant feedback.

Bloom's theory does not support the use of grades to evaluate students' learning abilities. After extensive teaching practice research, Bloom believes that as long as students are given enough time to learn, provided with sufficient learning materials, and receive timely and reasonable assistance from teachers, the vast majority of students can ensure a mastery level of over 80% of the knowledge learned during the learning process (Bloom, 1968).

Mastery Learning Theory holds that if students are given sufficient time and targeted guidance, the vast majority can meet the prescribed tasks and expectations of the teaching. The differences in students' learning ability can only determine how much time they spend to achieve the mastery level specified in the course objectives, but not the strength of their learning ability. Students with strong learning abilities tend to master the material more quickly, while those with weaker learning abilities may take longer to grasp it. Therefore, Mastery Learning Theory emphasizes the use of individualized teaching methods, the timely understanding of problems encountered by different students, and the provision of appropriate assistance (Bloom, 1968).

Mastery Learning Theory provides a comprehensive explanation and analysis of students' self-learning content during the knowledge transmission stage.

The impact of this theory on research:

In the pre-class stage of SPOC teaching model, students can learn the teaching resources provided by teachers on the learning platform independently, customize the learning pace according to their knowledge acceptance, master the time to watch videos, whether fast or slow, and find help from teachers and students through WeChat, Tiktok, Google and other social software or platform discussion areas when encountering questions that they don't understand, until they master the content required by teachers. For the duplicate teaching content, different students need to spend different amounts of time. Students with weaker political learning abilities tend to spend a longer time completing learning tasks. In contrast, students with stronger political learning abilities can perform the same functions in a relatively short time. Finally, when returning to the physical classroom, students can address and discuss vague knowledge points and challenging problems that were difficult to understand during online learning. Teachers provided personalized solutions and guidance to address students' residual issues, so that every student could master the corresponding course content. Therefore, mastering learning theory provides the theoretical basis for the SPOC teaching model, and it is of great significance for its implementation (Tang, 2021).

2.1.2 Constructivism Learning Theory

Constructivist learning theory posits that learners do not passively receive knowledge; instead, they actively construct their understanding of it. This theory was pioneered by scholars such as Jean Piaget and Lev S. Vygotsky, emphasizing the importance of the learning environment and social interaction in the process of knowledge construction (Piaget, 1972; Vygotsky, 1978). In the SPOC (Small Private Online Course) model, students engage in independent exploration and collaborative learning through online resources and interactive platforms, aligning with the core idea of constructivist learning theory.

One of the biggest misconceptions about blended learning is that it emphasizes teachers as creators of knowledge rather than students. To address this deficiency, we have incorporated constructivist theory into our research perspective. In

the context of the information society, the core of constructivist theory is to integrate concepts such as networking, dynamism, connectivity, and circularity into knowledge, learning, and teaching, thereby reconstructing the constructivist approach (Jonassen, 1991).

Constructivist learning theory was formally proposed by scholars such as Jean Piaget and Lev Vygotsky in the 1990s, and is also an essential part of the constructivist teaching system. It belongs to a theory about knowledge and learning, emphasizing learners' initiative and further expanding learning theory from behaviorism to cognitivism (Piaget, 1972; Vygotsky, 1978). Individual differences lead to varying perceptions of the experiential world, shaping how individuals react to and understand the external world. Constructivist theory holds that its effectiveness lies in preparing students to solve problems in complex environments. At the same time, this theory can facilitate effective communication among students during the teaching process, enhance interoperability among students, and continually develop and improve students' knowledge systems (Jonassen, 1991).

Under the guidance of constructivist theory, students can more actively construct knowledge through their own experiences and understanding. From a constructivist perspective, interaction and collaboration between teachers and students are crucial to the learning process. It focuses on continuous interaction between students and teachers, emphasizing that students are active creators of knowledge (Vygotsky, 1978). Constructivist learning theory stresses that teachers' role is to help students understand and learn knowledge, primarily by guiding them to deepen their understanding and cognition of knowledge points. Correcting students' erroneous views in the early stages of knowledge construction can enhance the quality of knowledge they acquire (Piaget, 1972; Vygotsky, 1978). Learning is not just about students passively receiving knowledge and information transmitted by teachers, but about students actively constructing knowledge during the learning process, which results from the self-development of cognitive subjects (Jonassen, 1991).

The overload of modern knowledge and information, the diversification of learning tools, and the fragmentation of learning require learners to actively participate in constructing knowledge and engage in systematic learning to acquire specialized knowledge in a specific field. Constructivist theory reflects the characteristics of

education. In the SPOC teaching model, students are active constructors of information, effectively solving the problem of neglecting individual differences in classroom knowledge transmission caused by consistent pacing. Constructivism holds that students construct their understanding of knowledge based on their personal interests and cognitive styles (Jonassen, 1991).

The impact of this theory on research:

According to constructivist theory, the SPOC teaching model emphasizes the richness and diversity of students' learning activities. In the SPOC teaching model, students do not enter the classroom empty-headed. In the pre-class stage, teachers can utilize various information and communication technology tools to promote and encourage collaboration, interaction, communication, and sharing among students, enabling them to form a basic understanding of political knowledge. During the in-class stage, students can engage in communication and practical activities to deepen their understanding of political fundamentals and explore the value of political knowledge. Through this, individuals can transform their existing knowledge and experience, construct new knowledge, and replace old knowledge with new knowledge.

2.1.3 Connectivism Learning Theory

Canadian scholar George Siemens proposed the connectivist learning theory through his research system, combining it with years of successful online learning models. This theory is a network phenomenon that explicitly states that various aspects of technology and socialization influenced learning during the application process. Siemens comprehensively analyzed people's learning behavior and related mechanisms in the online environment in his article "Connectivism: A Learning Theory for the Digital Age" (Siemens, 2005). He believes that learning theories such as behaviorism and cognitivism have distinct advantages for explaining people's learning in specific environments. However, in the context of the information society, connectivist learning theory can effectively reveal the learning mechanisms of the network era, and it is a learning theory developed for online learning environments.

The main principles of connectivism learning theory are as follows:

Learning and knowledge are grounded in the unity of diverse viewpoints.

Learning is the process of connecting different content or information sources.

Learning can be completed through tools and devices.

Compared to mastering existing knowledge, maintaining existing knowledge is more important.

Learning is sustained by keeping connections among various forms of knowledge.

In different fields, the ability to learn and create independently is essential.

The purpose of connected learning is to facilitate the flow of knowledge and information.

Connected learning can be viewed as a distinct learning process in its own right.

From this, it can be seen that the characteristic of connectivism theory is to enhance students' knowledge, innovation, and cognitive ability through online learning. It posits that constructing new knowledge involves connecting individuals' cognition with the outside world. In the Internet era, knowledge is dynamic, networked, and fragmented, with information scattered across network nodes. Thus, learning is about finding connections between these pieces of knowledge through the internet, connecting them, establishing new sources of information, and forming a knowledge network. Connectivism emphasizes the breadth and circulation of knowledge sources. The SPOC teaching model aligns with the notion that Unicom facilitates the expansion, innovation, and construction of knowledge meaning through the use of information technology in the Internet era (Wang & Zhu, 2006).

The impact of this theory on research: SPOC is essentially a type of learning supported by online education. Students can utilize SPOC's online learning resources to enhance their ability to expand knowledge. The theory of connectivism is not only the theoretical basis for the SPOC teaching model, but also has significant practical implications. Teachers should actively create conditions to maintain the flow of knowledge during the teaching process, maintain various connections between students' online and offline learning, and thus improve students' ability to integrate and innovate fragmented knowledge.

Based on the above analysis, it can be concluded that the emergence and development of SPOC are based on scientific theoretical foundations. The above theories emphasize the initiative and autonomy of learning, and the SPOC model of

learning requires students to have subjective initiative. Students are required to actively participate in learning, explore knowledge, collect and organize learning materials, communicate with others, and analyze and solve problems in an Internet environment. Mastery learning theory primarily explains the standards for mastering knowledge in the self-learning stage, which precedes SPOC online classes and falls under the knowledge transmission stage (Bloom, 1968). Constructivist theory primarily explains the inquiry learning process in SPOC offline physical classrooms, which falls under the stage of knowledge acceptance, and helps explain how students construct new knowledge based on existing knowledge (Piaget, 1972; Vygotsky, 1978). Connectivism primarily explains how students achieve a flow of knowledge, innovation, and integration through online and offline learning (Siemens, 2005).

2.2 Related Studies

2.2.1 Definition and Characteristics of the SPOC Teaching Model

(1) The Origin of the SPOC Teaching Model

The SPOC (Small Private Online Course) teaching model originated from MOOC (Massive Open Online Course), but differs in scale and privacy. The SPOC teaching model was proposed by Professor Armando Fox at the University of California, Berkeley, in 2013, aiming to combine the advantages of traditional classroom teaching with online courses (Fox, 2013).

(2) Definition of SPOC Teaching Model

The SPOC teaching model is a blended learning model that combines the flexibility of online courses with the interactivity of traditional classroom teaching. SPOC courses typically enroll a few hundred students, provide personalized learning experiences, and can be conducted in closed or semi-closed environments (Fox, 2013).

(3) Definition of SPOC Teaching Model

1) Small Scale: Compared to MOOCs, SPOC courses have fewer participants, typically ranging from tens to hundreds of people. This small-scale approach helps teachers better manage courses and provide personalized guidance for students (Fox, 2013)

2) Privacy: SPOC courses are typically conducted in a closed or semi-closed environment and are only accessible to specific students. This contrasts with the openness of MOOC (Fox, 2013).

3) High Interactivity: SPOC courses emphasize both teacher-student interaction and student-student interaction, enhancing interactivity through online discussions, homework feedback, and real-time Q&A (Fox, 2013).

4) Blended Learning: The SPOC model combines the advantages of online learning and face-to-face teaching, allowing students to learn theoretical knowledge online and then discuss and practice it in the classroom (Fox, 2013).

(4) The Difference Between the SPOC Teaching model and Other Online Learning models

Differences from MOOC:

1) Scale: MOOC courses are designed for a global audience and can have thousands or even tens of thousands of participants, whereas SPOC courses have a smaller scale and are more manageable (Fox, 2013).

2) Openness: MOOC courses are open to everyone, while SPOC courses are limited to specific groups (Fox, 2013).

3) Personalization: Due to the small scale of SPOC courses, teachers can provide more personalized guidance and support (Fox, 2013).

Differences from Traditional Online Courses:

1) Blended Learning: Traditional online courses are typically conducted entirely online, whereas the SPOC model combines online learning with face-to-face teaching (Fox, 2013).

2) Interactivity: The SPOC model emphasizes interactivity and enhances learning outcomes through various forms of interactive activities, while traditional online courses may have weaker interactivity (Fox, 2013).

2.2.2 Application of SPOC Teaching Model in Various Disciplines

The SPOC (Small Private Online Course) teaching model has been widely adopted across disciplines due to its flexibility and personalized teaching advantages. The following is a review of the specific application research of the SPOC model in science, engineering, humanities, and arts courses.

(1) Application in science and engineering courses

1) Engineering and Technology: In engineering and technology courses, the SPOC (Small Private Online Course) model is widely used in fields such as computer science, electronic engineering, and mechanical engineering. For example, the computer science course CS50 at Harvard University uses the SPOC model, in which students learn programming fundamentals online, enhance their programming skills through video tutorials and online exercises, and then collaborate on projects and practice in the classroom (Harvard University, n.d.).

2) Natural Sciences: The SPOC model is also applied in natural science courses such as physics, chemistry, and biology. Students can consolidate their theoretical knowledge through online experimental simulations and virtual laboratories for experimental operations. For example, the physics course at MIT employs the SPOC model, in which students conduct experimental previews and operational demonstrations via an online platform, then engage in practical operations and discussions in the classroom (Massachusetts Institute of Technology, n.d.).

(2) Application in liberal arts courses

1) History and Literature: In history and literature courses, the SPOC (Small Private Online Course) model offers a wealth of online resources and discussion platforms. For example, students can read historical documents online, watch documentaries, and participate in in-depth class discussions and debates. Stanford University's history course employs the SPOC model, allowing students to learn about historical events online and gain a deeper understanding of historical contexts through interactive maps and multimedia resources (Stanford University, n.d.).

2) Social Sciences: In social science courses such as sociology, psychology, and political science, the SPOC model helps students master research methods through online surveys, data analysis, and case studies. For example, the sociology course at the University of California, Berkeley, uses the SPOC model, enabling students to conduct online social surveys and analyze the results in class (University of California, Berkeley, n.d.).

(3) Application in art courses

1) Music Education: In music education, the SPOC (Small Private Online Course) model integrates online music theory instruction with practical performance exercises. For example, music courses at The Juilliard School utilize the SPOC model,

allowing students to learn music theory online, practice instrument performance through video tutorials, and receive performance demonstrations and guidance in class (The Juilliard School, n.d.).

2) Art Education: In art education, the SPOC model enhances students' art appreciation and creative skills through online art history courses and platforms for displaying creative assignments. For instance, the art course at New York University employs the SPOC model, enabling students to study art history online, upload their artwork, and participate in peer evaluation and discussion (New York University, n.d.).

2.2.3 Application of SPOC Teaching Model in Political Courses

(1) Existing research on the SPOC teaching model in political courses

The SPOC (Small Private Online Course) teaching model, as an innovative educational model, has been increasingly applied in political classes in recent years. The following is a review of the research on the application of existing SPOC teaching models in political classes.

1) Integration of Theory and Practice: Some studies highlight that the SPOC (Small Private Online Course) model can effectively integrate theoretical learning with practical application in political courses. For instance, the political science course at Stanford University uses the SPOC model, allowing students to study political theory online, deepen their understanding through video lectures and reading materials, and engage in practical activities such as simulated elections and classroom debates. This approach of combining theory with practice helps students better grasp complex political concepts (Song, 2024).

2) Personalized Learning: The small scale and privacy of the SPOC model enable teachers to provide more personalized guidance and feedback to students. For example, a political science course at Harvard University utilizes the SPOC model, allowing the instructors to provide customized learning guidance and resources tailored to each student's progress and interests. This personalized approach helps address students' diverse learning needs and improve their learning outcomes (Wang, 2024).

(2) Evaluate the results of these studies and their implications for this research:

1) Enhancing Self-Learning Ability: Existing research generally supports the idea that the SPOC (Small Private Online Course) model can significantly enhance

students' self-learning ability. For example, research from the University of California, Berkeley, found that students demonstrated notable improvements in self-learning and time management in political courses that utilized the SPOC model. This suggests that the SPOC model can effectively foster students' self-directed learning ability in political courses (Wu & Huang, 2024).

2) Improving Learning Outcomes: Many studies have shown that the SPOC model can enhance students' learning outcomes and academic performance. For instance, a study by Stanford University found that students in political courses using the SPOC model scored significantly higher on final exams compared to those receiving traditional classroom instruction. This indicates that the SPOC model has substantial potential to improve learning effectiveness and serves as a valuable reference for this study (Liu & Li, 2022).

3) Promoting Deep Learning: Existing research also suggests that the SPOC model can enhance students' deep understanding and critical thinking regarding political issues. For example, a study by Harvard University found that students in political courses who adopted the SPOC model demonstrated superior ability to analyze and solve complex political problems. This indicates that the SPOC model can effectively promote deep learning and critical thinking in political courses (Zhang, 2022).

4) Challenges Faced: Despite its advantages, the SPOC model also faces particular challenges in political courses. Technological dependence and increased teacher workload are two significant issues that warrant attention. This highlights the need to carefully consider these challenges when designing and implementing the SPOC model and to develop appropriate strategies to address them.

2.2.4 The Effectiveness and Shortcomings of the SPOC Teaching Model in Improving Students' Self-directed Learning Ability

(1) Effectiveness:

1) Enhance self-learning ability: The SPOC model significantly enhances students' self-learning ability by providing abundant online resources and flexible learning time arrangements. Students can choose learning content and methods based on their learning progress and interests, thereby enhancing their initiative and learning efficiency (Zhang, 2024).

2) Promoting deep learning: The SPOC model promotes students' deep understanding and application of knowledge through diverse learning activities and interactive segments. Research has shown that the SPOC model can improve students' academic performance and overall ability. For example, research has found that students who participate in SPOC courses achieve significantly higher final exam scores than those who receive traditional classroom instruction (Wang & Zhang, 2024).

3) Personalized learning: Due to the small scale of SPOC courses, teachers can provide personalized guidance and feedback for each student. This customized teaching method helps address students' diverse learning needs and improve their learning outcomes (Tang, 2024).

(2) Shortcomings

1) Technical dependence: The SPOC model heavily relies on information technology, and technical issues may impact learning effectiveness. Additionally, differences in students' adaptability to technology may lead to an uneven learning experience (Ye & Zeng, 2024).

2) Teacher engagement: The SPOC model requires teachers to invest a significant amount of time and effort in course design and student management, particularly in terms of online interaction and feedback, which entails a substantial workload. Teachers need to constantly update course content and respond promptly to students' questions, which poses a significant challenge to their time and energy (Ye & Zeng, 2024).

3) Resource limitations: Certain disciplines, such as science and art courses, require specific equipment and resource support, which is challenging to fully meet in a purely online environment. For example, the experimental sections in science and engineering courses, as well as the creative sections in art courses, require specialized laboratory and studio facilities, which are often difficult to access in online learning environments (Ye & Zeng, 2020).

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Methodology

3.1.1 Methodology

This study employed a quantitative research approach to investigate the effectiveness of the SPOC (Small Private Online Course) teaching model in enhancing students' self-directed learning abilities in political science courses at vocational colleges. The specific methods used include experimental design, questionnaire surveys, classroom testing, and statistical data analysis.

3.1.2 Research Type

This study adopted a quantitative research approach, focusing on educational experimental research. Using an experimental design, a 12-week SPOC teaching intervention was implemented to assess its impact on students' self-directed learning. Data collected through pre- and post-intervention assessments further quantified and validated the intervention's effects.

3.1.3 Research Procedures

(1) Preliminary Planning:

1) Clarifying Research Objectives: Establishing the goal of using the SPOC teaching model to strengthen the self-directed learning abilities of students in political science courses at Fuzhou Software Vocational and Technical College.

2) Designing Teaching Plans and Assessment Tools: Developing a SPOC curriculum plan tailored to political science courses, as well as pre- and post-test questionnaires aimed at measuring students' self-directed learning abilities, the implementation degree of the SPOC teaching model, and students' perceptions of the model.

(2) Pre-test:

Administering Pre-test: Distributing pre-test questionnaires to students before the intervention to assess their baseline levels of self-directed learning abilities in political science courses, their level of familiarity with the SPOC teaching model,

and their initial perceptions. Ensuring all participants complete the questionnaire under similar conditions to maintain data consistency.

(3) Intervention Implementation:

1) Designing the SPOC Course: Formulating and structuring a 12-week SPOC curriculum plan encompassing online lectures, interactive modules, discussion forums, and practical activities to cover the core content of political science courses.

2) Executing SPOC Instruction: Conducting SPOC instruction according to the designed curriculum plan, regularly monitoring students' learning progress, and providing feedback for necessary adjustments.

(4) Post-test and Survey:

Administering Post-test and Surveys: After the intervention, distribute post-test questionnaires and perspective surveys to assess changes in students' mastery of political science knowledge, self-directed learning abilities, and perspectives regarding the SPOC teaching model. Ensuring all participants complete the questionnaires under similar conditions.

(5) Data Analysis:

1) Calculating Average Scores: Quantifying changes in students' self-directed learning abilities by computing the average scores of pre- and post-test questionnaires.

2) Statistical Analysis: Utilizing statistical tools (e.g., paired t-tests) to analyze pre- and post-test data, determining whether significant differences exist to validate the effectiveness of the SPOC teaching model.

(6) Reporting Results:

1) Interpreting Results: Based on data analysis, explain the impact of the SPOC teaching model on students' self-directed learning abilities.

2) Preparing a Research Report: Compiling a comprehensive research report detailing the methodology, findings, conclusions, and implications for educational practice.

3.2 Research Population and Samples

3.2.1 Population

The subjects of this study included all students enrolled in the "politics" course at Fuzhou Software Vocational and Technical College in the 2024 academic year. This course is a compulsory component of the political studies program for second-year students in vocational colleges. The total number of students participating in this course is approximately 1,000 from 20 classes.

3.2.2 Samples

The subjects of this study included all students enrolled in the "Policy" course at Fuzhou Software Vocational and Technical College in the 2024 academic year. This course is a compulsory political course for second-year students in vocational colleges. The total number of students selected to participate in this course is 50 from one class.

3.2.3 Sampling Methods

The sample for this study came from the population mentioned above. To ensure the reliability and effectiveness of the research, 50 students from one class were selected as the sample. These students participated in the intervention using the SPOC teaching model.

Steps for Cluster Random Sampling:

1. Cluster Identification: Divide the population into naturally occurring groups (clusters) based on their existing organization, such as classrooms, departments, or geographical locations. For example, in this study, the population is divided into 20 classrooms, each consisting of 50 students.

2. Random Selection of Clusters: Randomly select one or more clusters from the total population of clusters. In this study, one classroom is randomly chosen as the sample cluster.

3. Whole Cluster Inclusion: Include all individuals within the selected cluster(s) in the study. For instance, all 50 students in the randomly selected classroom are included in the sample without further individual selection.

3.3 Data Collection

3.3.1 Table for Timetable for Collecting Data

Table 3.1 Table for Timetable for Collecting Data

Tentative Date	Data Collection Process
September	Getting permission from Fuzhou A college
October	Test and questionnaire
November	Data analysis and translation check
December	Review and consult the advisor.
January	Thesis proposal defence presentation

3.3.2 Before Learning the Questionnaire

Before the intervention, a pre-test was conducted to assess students' baseline political knowledge. The pre-test included a questionnaire designed to evaluate various aspects of self-directed learning, including motivation, time management, and self-efficacy. The pre-test questionnaire used the Likert scale (1-5) to measure students' level of agreement with each statement.

3.3.3 After Learning the Questionnaire

At the end of the intervention, a post-test was administered using the same questionnaire as the pre-test. This allowed for a direct comparison of students' self-learning ability before and after the intervention. The post-test also included additional questions to gather qualitative feedback on the students' experiences with the SPOC model.

3.3.4 Data Collection Tool

Standardized questionnaires were used for pre-testing and post-testing to ensure consistency and reliability. The questionnaire was distributed electronically for easy collection and analysis.

3.4 Research Instrument

To answer research question 1

3.4.1 Student Self - Learning Ability Questionnaire

(1) From the perspective of students' self-directed learning ability, this is a single choice of 30 projects, as shown below:

- 1) Time Management (5 items)
- 2) Information Acquisition and filtering (5 items)
- 3) Self-Directed Learning Strategies (5 items)
- 4) Deep Learning and Critical Thinking (5 items)
- 5) Interaction and Collaboration(5 items)
- 6) Self-Evaluation and Reflection(5 items)

(see the Appendices)

To answer research question 2

3.4.2 Lesson Plan and Test

3.4.2.1 Lesson Plan

The main research tools used in this study include

Lesson plan: a detailed lesson plan designed to achieve specific teaching objectives through the SPOC teaching model to improve teaching effectiveness and enhance students' self- learning ability in political science classes.

There are 5 lesson plans for 12 weeks, each lasting 90 minutes. The class has a total teaching time of 450 minutes.

(1) Lesson Plan 1: Globalization and International Relations

Objectives: Enhance students' Self-Directed Learning abilities in political science by focusing on time management, information acquisition, Self-Directed Learning strategies, deep learning, critical thinking, interaction, collaboration, and self-evaluation through the study of globalization and international relations.

Contents: Students accessed pre-class materials, including video lectures, readings, and quizzes, on the SPOC platform.

Focus: The trend of globalization and the international political and economic changes it brings; The foreign policy trends of major countries.

-Teaching Methods:

Step 1: Preview on the SPOC platform

Step 2: Teaching introduction

Step 3: Flipped Classroom and Group Discussion

Step 4: Practical activities

Step 5: Feedback and Assessment

Step 1: Preview on SPOC Platform

Objective: Enable students to manage their time effectively and acquire foundational knowledge on globalization and international relations.

Content: Students accessed before-class materials, including video lectures, readings, and quizzes on the SPOC platform.

Function:

1) Time Management: Students learn to allocate time for pre-class preparation, setting a foundation for structured learning.

2) Information Acquisition: Students engage with diverse resources to gather essential information on the topic.

Activity:

1) Watch videos explaining key concepts of globalization and international relations.

2) Complete quizzes that assess understanding and reinforce information acquisition.

Step 2 : Teaching Introduction

Objective: Introduce the key concepts of globalization and its influence on international relations, while reinforcing Self-Directed Learning strategies.

Content: Overview of globalization, international organizations, and their impact on global politics.

Function:

Self-Directed Learning Strategies: Students learn to connect new information with prior knowledge, organizing content for deeper understanding.

Activity:

- 1) Instructor-led discussion summarizing the core themes, with students encouraged to note key points and pose questions.

Step 3 : Flipped Classroom and Group Discussion.

Objective: Foster deep learning, critical thinking, and collaborative skills through discussion and peer interaction.

Content: Group analysis of case studies on globalization's impact on specific international relations issues.

Function:

- 1) Deep Learning and Critical Thinking: Students analyze case studies, engage in critical discussions, and challenge diverse perspectives to develop critical thinking skills.

- 2) Interaction and Collaboration: Through group work, students collaborate and share insights, thereby enhancing their understanding through peer interaction and discussion.

Activity:

- 1) Students discuss the impact of globalization on international conflicts or economic policies in small groups, followed by group presentations.

Step 4 : Practical Activities

Objective: Apply theoretical knowledge to real-world scenarios, reinforcing Self-Directed Learning and collaborative problem-solving.

Content: Role-playing exercises simulating international negotiations influenced by globalization.

Function:

- 1) Practical Application: Students apply the concepts they have learned in simulated scenarios, thereby enhancing their understanding of real-world applications.

- 2) Interaction and Collaboration: Collaborative role-playing fosters teamwork and collective problem-solving.

Activity:

- 1) Students are assigned roles as representatives of different countries in a mock negotiation on global trade issues.

Step 5 : Feedback and Assessment

Objective: Evaluate students' understanding and provide feedback on their Self-Directed Learning strategies and content mastery.

Content: Assessment through quizzes, peer reviews, and reflective writing on learning experiences.

Function:

1) Self-Evaluation and Reflection: Students reflect on their learning process, assess their progress, and adjust their strategies for future improvement.

Activity:

1) Post-class quiz covering key concepts of globalization and international relations.

2) Reflective essays where students evaluate their time management, information acquisition, and participation in discussions.

Lesson Plan 2: Domestic economic situation and reform policies

(3) Lesson Plan 3: Social Governance and Rule of Law Construction

(4) Lesson Plan 4: Environmental Protection and Sustainable Development Policies

(5) Lesson Plan 5: The Belt and Road Initiative and International Cooperation

3.4.2.2 Test

(1) From the perspective of political knowledge, this is a single-choice question involving 20 projects. The test has a total score of 100 points, with 5 points per correct answer and 0 points per incorrect answer.

1) Globalization and International Relations (4 items)

2) Domestic economic situation and reform policies (4 items)

3) Social Governance and Rule of Law Construction (4 items)

4) Environmental Protection and Sustainable Development Policies (4 items)

5) The Belt and Road Initiative and International Cooperation (4 items)

(see the Appendices)

(2) The Development Process of Test

1) Develop Test Content

Develop clear, concise questions and tasks that align with the learning objectives. Ensure that questions are unambiguous and that practical tasks are well-defined.

2) Pilot Testing

Administer the test to a small group of students or colleagues to identify any issues with the questions or tasks.

3) Finalize the Test

Refine the test based on pilot test results. Ensure that the test is well-balanced, clear, and appropriately challenging.

4) Administer the Test

Ensure that the testing environment is conducive to students' performance. This includes providing the necessary tools, software, and materials for practical tasks.

5) Evaluate and Provide Feedback

Grade the Test: Use consistent and fair grading criteria to accurately and fairly evaluate students' performance. For practical tasks, consider using rubrics that outline specific criteria for different levels of achievement.

For answering the research question 3

3.4.3 Student Perspectives Questionnaire

Designed a Likert scale that includes statements reflecting different aspects of the impact of SPOC patterns on self-directed learning. Participants rated their level of agreement with each statement on a 5-point Likert scale. From the perspective of evaluating students' application of the SPOC teaching mode to improve self-learning ability, the Table presents 18 items across 6 aspects.

1) Students' views on enhancing their time management skills in political classrooms through the SPOC teaching model (3 items)

2) Students' views on enhancing their Information Acquisition and filtering skills in political classrooms through the SPOC teaching model(3 items)

3) Students' views on enhancing their Self-Directed Learning Strategies in political classrooms through the SPOC teaching model (3 items)

4) Students' views on enhancing their Deep Learning and Critical Thinking in political classrooms through the SPOC teaching model (3 items)

5) Students' views on enhancing their Interaction and Collaboration in political classrooms through the SPOC teaching model(3 items)

6) Students' views on enhancing their Self-Evaluation and Reflection in political classrooms through the SPOC teaching model (3 items)

(see the Appendices)

Table 3.2 Student Perspectives Questionnaire

Research Questions	Research Objectives	Research Instrument	Data Collection	Data Analysis
1. How does the SPOC teaching model enhance students' self-directed learning abilities in political courses?	1. To investigate the effect of the SPOC teaching model in enhancing students' self-directed learning abilities in political courses at Fuzhou Software Vocational and Technical College.	Questionnaire	A rating of 5 means "strongly agree." A rating of 4 means "agree." A rating of 3 means "moderate." A rating of 2 means "disagree." A rating of 1 means "strongly disagree."	Quantitative data were analyzed by means \bar{x} and S.D., and the average of the expert opinion suitability score was calculated.
2. To what extent is the SPOC teaching model implemented in political courses, and how does its implementation affect students' self-directed learning abilities?	2. To investigate the SPOC teaching model implementation in political courses and analyze its impact on students' self-directed learning abilities.	Design tests in conjunction with lesson plans	Implement lesson plans; observe and assess student performance during and after instruction.	Analyze student exam scores through mean difference, standard deviation, variance, and paired sample t-test.

Research Questions	Research Objectives	Research Instrument	Data Collection	Data Analysis
3. What are students' perspectives towards the SPOC teaching model in enhancing their self-directed learning abilities in political courses?	3. To explore students' perspectives towards the SPOC teaching model in promoting their self-directed learning abilities in political courses.	The questionnaire focuses on students' perspectives.	A rating of 5 means "Strongly Satisfied." A rating of 4 means "Satisfied." A rating of 3 means "Neutral." A rating of 2 means "Dissatisfied." A rating of 1 means "Strongly Dissatisfied."	Likert scale Analysis for quantitative data

3.5 Reliability and Validity Testing of The Instrument

To ensure the reliability and validity of the research tools, this study conducted the following tests:

Directions: The IOC (Item objective Congruence) table was designed as part of the research conducted by Fuzhou Software Vocational and Technical College, titled "Enhancing Students' self-directed learning Ability in Political Courses through Small Private Online Course: A Case Study of Fuzhou Software Vocational and Technical College". The IOC evaluation team consisted of eight experts from the Political Science Teaching and Research Office of Fuzhou Software Vocational and Technical College. The study aims to empower students to improve their Self-Directed Learning abilities in political education through the SPOC teaching model, fostering greater initiative and effectiveness in their academic pursuits.

There is a view that "corresponds to the content/measurement objectives".

Rating is +1. There is an opinion that "Corresponds to content."

Rating is 0. There is an opinion that "Not sure it corresponds to content."

Rating is -1. There is an opinion that "Inconsistent with content."

Sample table:

Table 3.3 Lesson Plan 1.5 (IOC) for Answer RQ.2

The index of item-objective congruence				
No	Content	+1	0	-1
1	Preview on the SPOC platform			
2	Teaching introduction			
3	Flipped Classroom and Group Discussion			
4	Practical activities			
5	Feedback and Assessment			

Assessor :Position :

Workplace :

3.5.1 Student Self-Directed Learning Ability Questionnaire

To ensure the test's validity, the test content was reviewed by a team of education research experts.

The test content included 30 items:

- 1) Time Management (5 items)
- 2) Information Acquisition and filtering (5 items)
- 3) Self-Directed Learning Strategies (5 items)
- 4) Deep Learning and Critical Thinking (5 items)
- 5) Interaction and Collaboration(5 items)
- 6) Self-Evaluation and Reflection(5 items)

The development process of the SPOC teaching mode for political majors at Fuzhou Software Vocational and Technical College:

1) The concept and development process of the test validity evaluation form were studied.

2) We have developed an effectiveness evaluation form for self-directed learning ability testing, considering the following aspects:

The score is +1. There is a viewpoint that conforms to the content.

The score is 0, and some people believe that it is "uncertain whether it meets the content".

The score is -1. There is a viewpoint that does not conform to the content.

At the end of each section, an expert opinion column was provided for experts to offer suggestions for improvement.

3) Test validity evaluation form verified by the instructor.

4) Revise the testing effectiveness evaluation form according to the suggestions.

The Item Objective Congruence (IOC) index, also known as the Objective Consistency Index, was required. The content consistency index should be at least 0.50 to be considered suitable for research. Eight experts from the Department of Political Science at Fuzhou Software Vocational and Technical College evaluated 30 items, resulting in 226 scores of 1 and 14 scores of 0. The IOC analysis result of the survey questionnaire on the self-directed learning ability of political science students at Fuzhou Software Vocational and Technical College is 0.94.

3.5.2 Lesson Plan

To ensure the lesson plan's effectiveness, it was reviewed by a team of educational research experts.

The test content included 5 items:

Content (1 item)

Objective (1 item)

Teaching method (1 item)

Feedback Collection and Evaluation (1 item)

Summary (1 item)

The process of compiling the evaluation form for the effectiveness of teaching plans for political majors at Fuzhou Software Vocational and Technical College

1) The concept and development process of teaching plan validity evaluation and testing were studied.

2) The effectiveness evaluation form and consideration level of the teaching plan for political majors at Fuzhou Software Vocational and Technical College are as follows:

The score was +1. There was an opinion that it "conforms to the content."

The score was 0. There was an opinion that "it is not sure whether it conforms to the content".

The score was -1. There was an opinion that "does not conform to the content".

At the end of each section, there is space for experts to provide suggestions that helped improve it.

3) Verification of the effectiveness evaluation form for the teaching plan and the tutor test results.

4) The teaching plan effectiveness evaluation form and test were modified per the suggestions.

The Item Objective Congruence (IOC) index, also known as the Objective Consistency Index, was required. The content consistency index should be at least 0.50 to be considered suitable for research. Eight experts from the Department of Political Science at Fuzhou Software Vocational and Technical College evaluated 5 items, resulting in 37 scores of 1 and 3 scores of 0. The IOC analysis result of the political teaching plan at Fuzhou Software Vocational and Technical College is 0.93.

3.5.3 The Test

To ensure the test's validity, the test content was reviewed by a team of education research experts.

The test content included 20 items:

- 1) Globalization and International Relations (4 items)
- 2) Domestic economic situation and reform policies (4 items)
- 3) Social Governance and Rule of Law Construction (4 items)
- 4) Environmental Protection and Sustainable Development Policies (4 items)
- 5) The Belt and Road Initiative and International Cooperation (4 items)

The development process of the SPOC teaching mode for political majors at Fuzhou Software Vocational and Technical College:

- 1) The concept and development process of the test validity evaluation form were studied.

2) We have developed an effectiveness evaluation form for political science knowledge testing, considering the following aspects:

The score is +1. There is a viewpoint that conforms to the content.

The score is 0, and some people believe that it is "uncertain whether it meets the content".

The score is -1. There is a viewpoint that does not conform to the content.

At the end of each section, an expert opinion column is provided for experts to offer suggestions for improvement.

3) Test validity evaluation form verified by the instructor.

4) Revise the testing effectiveness evaluation form according to the suggestions.

The Item Objective Congruence (IOC) index, also known as the Objective Consistency Index, was required. The content consistency index should be at least 0.50 to be considered suitable for research. Eight experts from the Department of Political Science at Fuzhou Software Vocational and Technical College evaluated 20 items, resulting in 154 scores of 1 and 6 scores of 0. The IOC analysis result of the Political Knowledge Ability Test of political major students at Fuzhou Software Vocational and Technical College is 0.96.

3.5.4 Student Perspectives Questionnaire

To ensure the validity of the student questionnaire's content, it was reviewed by a team of education research experts.

The test content included 18 items:

1) Students' views on enhancing their time management skills in political classrooms through the SPOC teaching model (3 items)

2) Students' views on enhancing their Information Acquisition and filtering skills in political classrooms through the SPOC teaching model (3 items)

3) Students' views on enhancing their Self-Directed Learning Strategies in political classrooms through the SPOC teaching model (3 items)

4) Students' views on enhancing their Deep Learning and Critical Thinking in political classrooms through the SPOC teaching model (3 items)

5) Students' views on enhancing their Interaction and Collaboration in political classrooms through the SPOC teaching model (3 items)

6) Students' views on enhancing their Self-Evaluation and Reflection in political classrooms through the SPOC teaching model (3 items)

The process of compiling a questionnaire evaluation form on students' views on the SPOC teaching model for improving their ability to learn independently in political courses.

The concept and development process of a questionnaire validity evaluation form. 2) Developed a validity evaluation form for the "SPOC teaching model for enhancing students' self-learning ability in political classrooms" questionnaire. The degree of consideration is as follows:

The score is +1. There is a viewpoint that conforms to the content.

The score is 0. There is a view that 'it is uncertain whether it conforms to the content'.

The score is -1. There is a viewpoint that does not conform to the content.

At the end of each section, there was space for experts to offer suggestions for improvement.

3) The consultant verifies the validity of the evaluation questionnaire.

4) According to the suggestion, the questionnaire validity evaluation form has been modified.

Request IOC (Item objective Congruence). The content consistency standard index should be at least 0.5 to be considered suitable for research. Eight experts from the Department of Political Science at Fuzhou Software Vocational and Technical College evaluated 18 items, yielding 139 scores ranging from 1 to 5, with no 0s. The IOC analysis result of the questionnaire "Students' perspectives on the SPOC Teaching Model for Improving Political Students' self-directed learning" is 0.97.

3.6 Data Analysis

3.6.1 Descriptive Statistics

Descriptive statistics were used to summarize and describe the main features of the collected data. This includes:

(1) Mean and Standard Deviation: Calculating the mean and standard deviation for each section of the questionnaire to understand the central tendency and variability of students' self-directed learning ability.

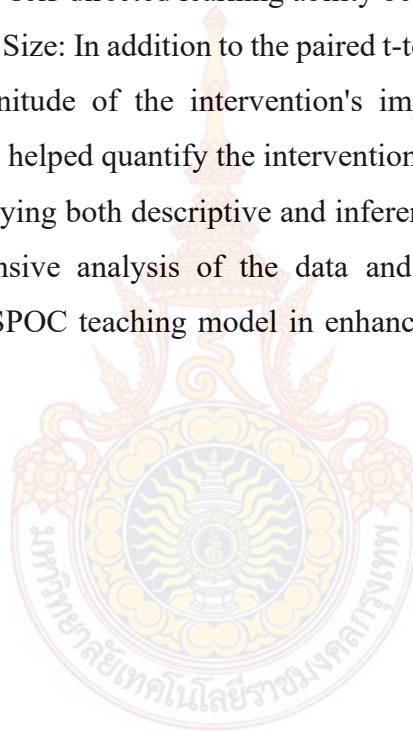
(2) Frequency Distribution: Analyzing the frequency distribution of responses to each question to identify patterns and trends in the data.

3.6.2 Inferential Statistics

(1) Paired t-test: A paired t-test was conducted to compare the pre-test and post-test scores of the students. This test determined if there is a statistically significant difference in students' self-directed learning ability before and after the intervention

(2) Effect Size: In addition to the paired t-test, the effect size was calculated to measure the magnitude of the intervention's impact on students' Self-Directed Learning ability. This helped quantify the intervention's practical significance.

By employing both descriptive and inferential statistics, this study aims to provide a comprehensive analysis of the data and offer deeper insights into the effectiveness of the SPOC teaching model in enhancing self-directed learning in the "Politics" course.



CHAPTER IV

ANALYSIS RESULT

4.1 Research Findings

This chapter primarily focuses on comparing the self-directed learning ability and political science test performance of Second-year university students in the experimental group before and after implementing the SPOC teaching model. It also analyzes their perspectives on the effectiveness of the SPOC teaching model in enhancing self-directed learning ability. The collected data is analyzed using descriptive analysis and inferential behavioral analysis. Through these analyses, the study aims to reveal the commonalities and differences observed in the experimental group after using the SPOC teaching model. The findings are expected to provide valuable insights into improving self-directed learning through the SPOC teaching model.

Research questions include:

1. How does the SPOC teaching model enhance students' self-directed learning abilities in political courses?
2. To what extent is the SPOC teaching model implemented in political courses, and how does its implementation affect students' self-directed learning abilities?
3. What are students' perspectives towards the SPOC teaching model in enhancing their self-directed learning abilities in political courses?

The concept of self-directed learning, as an educational philosophy and learning strategy, emphasizes learners' active involvement in the learning process through autonomy, self-motivation, and self-monitoring to achieve personal learning goals and develop skills. In the context of political science courses, self-directed learning ability is reflected in students' capacity to take initiative in their learning by selecting topics and methods that align with their interests, needs, and cognitive skills. This approach underscores the learner's central role, encouraging them to engage critically with political concepts, independently seek out and evaluate resources, and apply their knowledge to analyze and solve complex political issues. By fostering

autonomy and personalized learning paths, this model aims to cultivate lifelong learning skills and enhance students' political literacy and critical thinking abilities.

The survey results indicate that the SPOC teaching model significantly improved students' self-directed learning ability. Specifically, as shown in the table, the experimental group demonstrated superior self-directed learning in political courses after implementing the SPOC teaching model, compared with before the intervention. Following the SPOC teaching model, students' self-directed learning generally exceeded expectations, with no significant issues or shortcomings, and they expressed positive perspectives on the learning process, demonstrating high consistency. In contrast, before the intervention, students met expectations but exhibited some minor issues or shortcomings, although their learning process remained highly consistent.

According to the experimental results, the following six Self-Directed Learning methods in the SPOC teaching mode play a key role in promoting students' ability to learn independently:

- 1) Time Management
- 2) Information Acquisition and Filtering
- 3) Self-Directed Learning Strategies
- 4) Deep Learning and Critical Thinking
- 5) Interaction and Collaboration
- 6) Self-Evaluation and Reflection

These methods not only help students better master Self-Directed Learning skills but also improve their comprehensive learning ability and Self-Directed Learning initiative.

Part 1 to answer the research question 1: How does the SPOC teaching model enhance students' self-directed learning abilities in political courses ?

Before implementing the SPOC teaching mode intervention:

Table 4.1 Experimental Group Table (Pre)

No.	Questions	\bar{x}	S.D.	Interpretation
1	Time Management			
1)	I can effectively create and follow a study schedule for my political studies.	2.64	0.60	Moderate
2)	I allocate my study time efficiently across different topics in the "Current Affairs and Policies" course.	2.62	0.70	Moderate
3)	I manage to meet my study deadlines for assignments and projects.	2.92	0.88	Moderate
4)	I prioritize my study tasks based on their importance and deadlines.	2.90	0.61	Moderate
5)	I rarely find myself cramming for tests or assignments at the last minute.	2.46	0.81	Disagree
2	Information Acquisition and Filtering			
1)	I can independently find and select reliable sources of information for my political studies.	2.68	0.84	Moderate
2)	I critically evaluate the quality and relevance of the information I acquire.	2.78	0.76	Moderate
3)	I can effectively organize and integrate information from multiple sources.	2.72	0.64	Moderate
4)	I regularly cross-check information from different sources to ensure its accuracy.	2.70	0.79	Moderate
5)	I feel confident in distinguishing between credible and non-credible sources of information.	2.66	0.87	Moderate
3	Self-Directed Learning Strategies			
1)	I use various learning strategies to understand and retain the course material.	2.50	0.74	Disagree
2)	I adapt my learning strategies based on the complexity of the topics covered.	2.54	0.65	Moderate
3)	I regularly review and revise the course content to deepen my understanding.	2.54	0.73	Moderate
4)	I experiment with different study techniques to find what works best for me.	2.64	0.83	Moderate
5)	I utilize online resources, including videos and articles, to supplement my learning.	2.72	0.83	Moderate

No.	Questions	\bar{x}	S.D.	Interpretation
4	Deep Learning and Critical Thinking			
1)	I strive to understand the underlying principles and concepts in political issues, rather than just memorizing facts.	2.66	0.77	Moderate
2)	I can critically analyze and evaluate different perspectives on political issues.	2.58	0.81	Moderate
3)	I can apply my knowledge to solve complex political problems and scenarios.	2.54	0.79	Moderate
4)	I aim to comprehend the broader context of the political issues I examine.	2.74	0.75	Moderate Moderate
5)	I feel comfortable questioning and challenging ideas presented in the course.	2.64	0.75	Moderate
5	Interaction and Collaboration			
1)	I actively participate in online discussions and collaborate with peers on assignments.	2.54	0.76	Moderate
2)	I seek feedback from my peers and instructors to improve my understanding.	2.50	0.76	Disagree
3)	I contribute constructively to group activities and class discussions.	2.56	0.76	Moderate
4)	I find value in learning from my peers' perspectives.	2.70	0.71	Moderate
5)	I feel confident in leading group discussions or activities.	2.60	0.81	Moderate
6	Self-Evaluation and Reflection			
1)	I regularly assess my progress and adjust my study methods accordingly.	2.50	0.81	Disagree
2)	I reflect on my learning experiences to identify areas for improvement.	2.72	0.70	Moderate
3)	I am aware of my strengths and weaknesses in my approach to learning.	2.58	0.70	Moderate
4)	I set specific goals for my personal and academic development.	2.58	0.70	Moderate
5)	I regularly seek feedback to evaluate my performance and progress.	2.62	0.83	Moderate
	\bar{x}	2.64	0.76	Moderate
	S.D.	0.12	0.07	

From Table 4.1 Experimental Group Table (Pre) show that :

The rating range is 1.00-5.00:

1.00–1.50: Strongly Disagree

1.51–2.50: Disagree

2.51–3.50: Moderate

3.51–4.50: Agree

4.51–5.00: Strongly Agree

The overall result for the group was an $\bar{x} = 2.64$, S.D. = 0.12. The interpretation was "moderate."

The group could explain the following interesting issues:

1. I rarely find myself cramming for tests or assignments at the last minute:

$\bar{x} = 2.46$, S.D. = 0.81. The interpretation was "disagree."

2. I regularly assess my progress and adjust my study methods accordingly:

$\bar{x} = 2.50$, S.D. = 0.81. The interpretation was "disagree."

3. I seek feedback from my peers and instructors to improve my

understanding: $\bar{x} = 2.50$, S.D. = 0.76. The interpretation was "disagree."

After implementing the SPOC teaching mode intervention:

Table 4.2 Experimental Group Table (Post)

No.	Questions	\bar{x}	S.D.	Interpretation
1	Time Management			
1)	I can effectively create and follow a study schedule for my political studies.	4.42	0.67	Agree
2)	I allocate my study time efficiently across different topics in the "Current Affairs and Policies" course.	4.36	0.66	Agree
3)	I manage to meet my study deadlines for assignments and projects.	4.42	0.73	Agree
4)	I prioritize my study tasks based on their importance and deadlines.	4.38	0.67	Agree
5)	I rarely find myself cramming for tests or assignments at the last minute.	4.28	0.78	Agree
2	Information Acquisition and Filtering			
1)	I can independently find and select reliable sources of information for my political studies.	4.26	0.66	Agree
2)	I critically evaluate the quality and relevance of the information I acquire.	4.30	0.74	Agree

No.	Questions	\bar{x}	S.D.	Interpretation
3)	I can effectively organize and integrate information from multiple sources.	4.30	0.71	Agree
4)	I regularly cross-check information from different sources to ensure its accuracy.	4.24	0.72	Agree
5)	I feel confident in distinguishing between credible and non-credible sources of information.	4.24	0.77	Agree
3	Self-Directed Learning Strategies			
1)	I use various learning strategies to understand and retain the course material.	4.38	0.70	Agree
2)	I adapt my learning strategies based on the complexity of the topics covered.	4.32	0.71	Agree
3)	I regularly review and revise the course content to deepen my understanding.	4.26	0.66	Agree
4)	I experiment with different study techniques to find what works best for me.	4.24	0.72	Agree
5)	I utilize online resources, including videos and articles, to supplement my learning.	4.28	0.73	Agree
4	Deep Learning and Critical Thinking			
1)	I strive to understand the underlying principles and concepts in political issues, rather than just memorizing facts.	4.36	0.72	Agree
2)	I can critically analyze and evaluate different perspectives on political issues.	4.34	0.69	Agree
3)	I can apply my knowledge to solve complex political problems and scenarios.	4.30	0.68	Agree
4)	I aim to comprehend the broader context of the political issues I examine.	4.38	0.70	Agree
5)	I feel comfortable questioning and challenging ideas presented in the course.	4.30	0.68	Agree
5	Interaction and Collaboration			
1)	I actively participate in online discussions and collaborate with peers on assignments.	4.24	0.72	Agree
2)	I seek feedback from my peers and instructors to improve my understanding.	4.26	0.72	Agree
3)	I contribute constructively to group activities and class discussions.	4.24	0.74	Agree

No.	Questions	\bar{x}	S.D.	Interpretation
4)	I find value in learning from my peers' perspectives.	4.26	0.83	Agree
5)	I feel confident in leading group discussions or activities.	4.24	0.80	Agree
6	Self-Evaluation and Reflection			
1)	I regularly assess my progress and adjust my study methods accordingly.	4.32	0.74	Agree
2)	I reflect on my learning experiences to identify areas for improvement.	4.36	0.72	Agree
3)	I am aware of my strengths and weaknesses in my approach to learning.	4.32	0.65	Agree
4)	I set specific goals for my personal and academic development.	4.40	0.70	Agree
5)	I regularly seek feedback to evaluate my performance and progress.	4.38	0.70	Agree
	\bar{x}	4.31	0.71	Agree
	S.D.	0.06	0.04	

From Table 4.2: Experimental Group Table (Post) show that :

The SPOC teaching model can significantly improve political students' Self-Directed Learning abilities. The overall result for the experimental group was $\bar{X}=4.31$, S.D. = 0.06. The interpretation was "agree."

The group could explain the following interesting issues:

1. I can effectively create and follow a study schedule for my political studies: $\bar{X}=4.42$, S.D. = 0.67. The interpretation was " agree."

2. I seek to understand the broader context of the political issues I study:

$\bar{X} = 4.38$, S.D. = 0.70. The interpretation was "agree."

3. I set specific goals for my personal and academic development.: $\bar{X} = 4.40$, S.D. = 0.70. The interpretation was "agree."

By comparing the results before and after the intervention in Tables 4.1 and 4.2, it can be seen that the SPOC teaching mode significantly improves the autonomous learning ability of political students.

Part 2 to answer the research question 2: To what extent is the SPOC teaching model implemented in political courses, and how does its implementation affect students' self-directed learning abilities?

By comparing the pre-test and post-test scores, we can observe that implementing the SPOC teaching model has significantly increased students' political knowledge, indicating a corresponding improvement in their Self-directed learning abilities.

Table 4.3 Student Political Proficiency Test Score

Serial Number	Score (Pre Text)	Score (Post Text)	Difference
1	80.00	95.00	15.00
2	60.00	95.00	35.00
3	55.00	95.00	40.00
4	70.00	100.00	30.00
5	70.00	100.00	30.00
6	70.00	100.00	30.00
7	60.00	95.00	35.00
8	60.00	95.00	35.00
9	60.00	95.00	35.00
10	80.00	100.00	20.00
11	80.00	100.00	20.00
12	50.00	85.00	35.00
13	75.00	100.00	25.00
14	75.00	100.00	25.00
15	80.00	100.00	20.00
16	70.00	100.00	30.00
17	70.00	100.00	30.00
18	80.00	95.00	15.00
19	80.00	95.00	15.00
20	70.00	95.00	25.00
21	65.00	95.00	30.00
22	80.00	85.00	5.00
23	75.00	80.00	5.00
24	80.00	95.00	15.00
25	65.00	80.00	15.00
26	70.00	100.00	30.00
27	60.00	70.00	10.00
28	75.00	90.00	15.00
29	85.00	95.00	10.00

Serial Number	Score (Pre Text)	Score (Post Text)	Difference
30	45.00	95.00	50.00
31	70.00	95.00	25.00
32	85.00	90.00	5.00
33	75.00	95.00	20.00
34	85.00	90.00	5.00
35	80.00	85.00	5.00
36	75.00	85.00	10.00
37	70.00	75.00	5.00
38	70.00	90.00	20.00
39	75.00	90.00	15.00
40	70.00	90.00	20.00
41	80.00	90.00	10.00
42	75.00	80.00	5.00
43	75.00	90.00	15.00
44	75.00	90.00	15.00
45	75.00	75.00	0.00
46	50.00	90.00	40.00
47	50.00	90.00	40.00
48	50.00	60.00	10.00
49	65.00	90.00	25.00
50	60.00	65.00	5.00
\bar{x}	70.10	90.60	20.50
S.D.	10.18	9.29	11.92
variance (statistics)	103.56	86.37	142.09

From Table 4.3: Student Political Proficiency Test Score shows that :

1. Average score (\bar{X}) : The average score before the political ability test is 70.10, and the average score after the test is 90.6, with a difference of 20.5 points.
2. Standard deviation (S.D.): The pre-test S.D. It was measured at 10.18, then at 9.29. This indicates that the post-test scores are more concentrated and have less variability.
3. Variance (statistics): The variance (statistics) of the pre-test group is 103.56, while that of the post-test group is 86.37. A lower variance indicates that post-test scores are closer to the mean and more consistent.

Table 4.4 Paired Sample t-test Results (Calculated using Excel)

Statistical Indicator	Calculation Results
Sample average difference ($\bar{X}D$)	20.50
Standard deviation of sample difference (SD)	11.92
Number of samples (n)	50.00
Degrees of freedom (df)	49.00
t-values (t)	12.17
Critical T-value	2.01
Significant conclusion	Significant difference (t>Critical T-value)

From Table 4.4: Paired sample t-test results show that:

Pre Test mean=70.10, standard deviation=10.18, sample size=50.

Post Test mean=90.6, standard deviation=9.29, sample size=50.

1. Mean difference: 20.50

2. Standard deviation of difference:11.92

3. t-value:

$$t=20.5/(11.92/7.071)=12.17$$

4. The degree of freedom (df) is related to the sample size (n). For a paired t-test, the degrees of freedom are $df = n-1 = 49$

5. The significance level threshold is set at 0.05

Under the condition of 49 degrees of freedom and a significance level of 0.05, the two-sided critical value of the T distribution is approximately ± 2.01 .

Since $t = 12.17 > 2.01$, we reject the null hypothesis and conclude that the differences observed in the data are statistically significant, indicating a substantial change in the growth of political knowledge among students in political courses.

According to the data in Tables 4-4 and 4-5, the results further indicate that, compared with the pre-test, students' self-directed learning ability has improved through the SPOC teaching mode, and their political exam scores have not only increased significantly but also become more concentrated and consistent.

Part 3 to answer the research question 3: What are students' perspectives towards the SPOC teaching model in enhancing their self-directed learning abilities in political courses?

To explore students' perspectives on the SPOC teaching model's role in promoting their self-directed learning in political courses.

Perspectives Evaluation for answer RQ.3

Table 4.5 Experimental Group Perspectives Evaluation

No.	Questions	\bar{x}	S.D.	Interpretation
1	Students' views on enhancing their time management skills in political classrooms through the SPOC teaching model			
1)	The SPOC teaching model has helped me manage my study time more effectively.	4.32	0.71	Satisfied
2)	The SPOC teaching model has helped me manage my study time more effectively.	4.34	0.69	Satisfied
3)	The flexibility of the SPOC model allows me to allocate time to my studies more efficiently.	4.30	0.68	Satisfied
2	Students' views on enhancing their Information Acquisition and filtering skills in political classrooms through the SPOC teaching model			
4)	The SPOC model has improved my ability to acquire and filter relevant information for my studies.	4.26	0.63	Satisfied
5)	I am better at distinguishing important information from irrelevant content due to the SPOC model.	4.32	0.68	Satisfied
6)	The resources provided in the SPOC model help guide my information-gathering efforts.	4.28	0.70	Satisfied
3	Students' views on enhancing their Self-Directed Learning Strategies in political classrooms through the SPOC teaching model			
7)	The SPOC model has helped me develop more effective Self-Directed Learning strategies.	4.32	0.77	Satisfied
8)	I have become more independent in my learning due to the SPOC teaching model.	4.18	0.72	Satisfied
9)	The SPOC model encourages me to take initiative in my studies.	4.28	0.70	Satisfied
4	Students' views on enhancing their Deep Learning and Critical Thinking in political classrooms through the SPOC teaching model			
10)	The SPOC model has deepened my understanding of political course content.	4.34	0.66	Satisfied

No.	Questions	\bar{x}	S.D.	Interpretation
11)	I have improved my critical thinking skills through the SPOC model.	4.30	0.71	Satisfied
12)	The interactive components of the SPOC model enhance my critical thinking about complex issues.	4.24	0.69	Satisfied
5	Students' views on enhancing their Interaction and Collaboration in political classrooms through the SPOC teaching model			
13)	The SPOC model promotes effective interaction and collaboration with my peers.	4.26	0.66	Satisfied
14)	I have learned to work more effectively in groups due to the SPOC teaching model.	4.32	0.74	Satisfied
15)	The SPOC model encourages more meaningful discussions and exchanges of ideas.	4.28	0.73	Satisfied
6	Students' views on enhancing their Self-Evaluation and Reflection in political classrooms through the SPOC teaching model			
16)	The SPOC model has improved my ability to reflect on my learning process.	4.30	0.68	Satisfied
17)	I have become more aware of my strengths and weaknesses in learning through the SPOC model.	4.28	0.76	Satisfied
18)	The SPOC model encourages regular self-assessment and adjustment of my learning strategies.	4.24	0.72	Satisfied
	\bar{x}	4.28	0.70	Satisfied
	S.D.	0.04	0.03	

From Table 4.5, Experimental Group Perspectives Evaluation shows that:

The SPOC teaching model can effectively enhance students' self-directed learning abilities. The overall result for the experimental group was an $\bar{x}= 4.28$, S.D. = 0.70. The interpretation was "satisfied."

The experimental group could explain the following interesting issues:

1. The SPOC teaching model has helped me manage my study time more effectively.: $\bar{X}= 4.34$, S.D. = 0.69. The interpretation was "satisfied."

2. The SPOC model has deepened my understanding of political course content.: $\bar{X} = 4.34$, S.D. = 0.66. The interpretation was "satisfied."

3. The SPOC model has improved my ability to reflect on my learning process.: $\bar{X} = 4.30$, S.D. = 0.68. The interpretation was "satisfied."

The results of the experimental group indicate that students are satisfied with the SPOC teaching mode for enhancing their independent learning in political courses.



CHAPTER V

CONCLUSION AND DISCUSSION

5.1 Conclusion

Part 1 to answer the research question No. 1

The SPOC teaching model significantly improves students' ability to self-direct their learning. After undergoing SPOC teaching, the experimental group learned about Time Management, Information Acquisition and Filtering, Self-Directed Learning Strategies, Deep Learning and Critical Thinking, Interaction and Collaboration, and Self-Evaluation and Reflection. Significant progress has been made in these six aspects.

Part 2 to answer research question no. 2

After being taught using the SPOC teaching model, students' political proficiency on the post-test is generally higher than on the pre-test. This indicates that the deeper the implementation of the SPOC teaching model, the stronger students' self-directed learning abilities, and the greater their academic progress.

Part 3: to answer the research question. 3

Students are delighted with the SPOC teaching model for enhancing their self-directed learning abilities. Satisfactory evaluations have been obtained in six aspects: time management, information acquisition and filtering, Self-Directed Learning strategies, deep learning and critical thinking, interaction and collaboration, and self-evaluation and reflection.

These findings are highly significant for educational practice, as they confirm the effectiveness of self-directed learning approaches in enhancing both academic performance and self-directed learning. They provide robust support for educators to implement self-directed learning strategies across various teaching contexts. Such strategies not only improve students' educational outcomes, such as political proficiency, but also foster critical thinking and great analytical skills, establishing a strong foundation for their lifelong learning and development.

Future research could further investigate the impact of diverse teaching models, such as the SPOC teaching model, on students' self-directed learning abilities

across different disciplines and educational levels. This would help refine and optimize teaching strategies tailored to specific subject areas and learner needs.

5.2 Discussion

Part 1: to answer the research question 1: How does the SPOC teaching model enhance students' self-directed learning abilities in political courses ?

The results in Tables 4-1 and 4-2, which indicate a significant improvement in students' Self-Directed Learning ability after implementing the SPOC teaching model, can be understood through the lens of the three theoretical frameworks discussed in the literature review. Mastery Learning Theory (Bloom, 1968) emphasizes that, given adequate time and individualized support, students can achieve mastery in their learning. This is reflected in the improvement in students' post-test results, where personalized learning paths in the SPOC model enabled students with varying abilities to progress at their own pace, ultimately leading to mastery of the course content. Additionally, Constructivist Learning Theory (Piaget, 1972; Vygotsky, 1978) posits that students actively construct knowledge through interaction with their environment. The SPOC model facilitated active learning, enabling students to engage with online resources and participate in classroom discussions, thereby promoting a deeper understanding of the material. Lastly, Connectivism Learning Theory (Siemens, 2005) suggests that learning is enhanced by the ability to connect information across various nodes in a network. The SPOC model, with its emphasis on technology and collaborative platforms, enabled students to integrate information from diverse sources, thereby enhancing their self-directed learning. Together, these theories help explain the significant improvement in students' Self-Directed Learning abilities as evidenced by the data, highlighting the effectiveness of the SPOC teaching model in fostering self-directed, interactive, and networked learning.

For example, in terms of self-directed learning time management, the experimental group's average score was 4.37 (SD = 0.70), indicating that many time management strategies were employed during the self-directed learning process. This supports previous studies that show SPOC can enhance time management skills (Song, 2024). Other aspects, such as deep learning, critical thinking, self-evaluation, and

reflection, also showed a mean above 4.31. The overall result of the experimental group is $\bar{x}= 4.31$, with a standard deviation of 0.06. These results also emphasize the importance of implementing the SPOC teaching mode in improving self-directed learning ability (Liu & Li, 2022).

Further details show that the experimental group scored the highest in the following aspects of post-test results:

1."I can effectively create and follow a study schedule for my political studies." The interpretation was "agree."

This high average score indicates that students can effectively develop and adhere to a study schedule for political studies. This is consistent with the explanation of 'agreement', reflecting their level of time management in the political class learning. This finding supports previous research by Wang (2024) and highlights how SPOC can enhance students' time management skills.

2."I seek to understand the broader context of the political issues I study." The interpretation was "agree."

This high average score indicates that students actively seek to understand the broader context of the political issues they are studying. This result is consistent with the explanation of 'agreement', highlighting their deep learning and critical thinking on political topics. This aligns with the findings of Wu and Huang (2024), which demonstrate that SPOC facilitates deep learning and critical thinking.

3."I set specific goals for my personal and academic development." The interpretation was "agree."

This high average score indicates that students consistently set specific goals for personal and academic development. This is consistent with the explanation of 'agreement', reflecting their continuous self-evaluation and reflection during self-directed learning in political courses. This supports the results from Zhang (2022), which indicated that SPOC encourages self-regulation and reflection in students.

These high scores indicate excellent performance in these key areas after intervention testing, effectively utilizing the advantages of the SPOC teaching model.

In contrast, these aspects performed poorly before intervention:

1."I rarely find myself cramming for tests or assignments at the last minute." The interpretation was "disagree."

This low average score indicates that students often cram for exams or assignments at the last minute. This is consistent with the explanation of 'disagree', suggesting that students lacked effective time management strategies before adopting the SPOC teaching model, which may have harmed their learning outcomes. This confirms the challenges identified in previous studies that SPOC can address (Ye & Zeng, 2020).

2. "I regularly assess my progress and adjust my study methods accordingly." The interpretation was "disagree."

This low average score indicates that students have not consistently evaluated their progress or adjusted their learning methods. This corresponds to the explanation of 'disagree', reflecting the gap in their self-evaluation and adaptability before implementing the SPOC teaching mode, which may hinder their overall learning outcomes. This aligns with earlier studies that emphasize the importance of self-evaluation in self-directed learning (Wu & Huang, 2024).

3. "I seek feedback from my peers and instructors to improve my understanding." The interpretation was "disagree."

This low average score indicates that students rarely seek feedback from peers and mentors to enhance their understanding. This is consistent with the explanation of 'disagree', suggesting that students lack initiative in using feedback to improve learning outcomes before implementing the SPOC teaching model. This finding aligns with prior research that emphasizes the advantages of peer and instructor feedback in the SPOC model (Wang & Zhang, 2024).

By comparing pre-test and post-test results, it is clear that the SPOC teaching model significantly enhances students' self-directed learning. A comprehensive analysis that combines qualitative and quantitative data provides a deeper understanding of how the SPOC model enhances students' ability to engage in self-directed learning in political courses. These findings align with Constructivist Learning Theory (Piaget, 1972; Vygotsky, 1978), which emphasizes the active construction of knowledge. In the SPOC environment, students actively explore and construct knowledge through online resources while also interacting with peers and teachers during in-class activities. This collaborative learning process encourages students to build on their prior knowledge and refine their understanding, a principle

central to constructivist education. Future research should continue to explore these methods across diverse educational settings to validate these findings further and expand their applicability (Tang, 2024).

In summary, after the SPOC teaching mode intervention, self-directed learning improved significantly, with a noticeable deficit prior to the intervention. This highlights the importance of self-directed learning in enhancing students' self-directed learning and its substantial impact on their academic performance. To enhance students' Self-Directed Learning ability, teachers should focus on refining and perfecting the SPOC teaching method, enabling students to master Self-Directed Learning strategies better. This supports Zhang's (2024) conclusions, which underscore the effectiveness of SPOC in fostering students' self-directed learning.

Part 2: To answer the research question 2: To what extent is the SPOC teaching model implemented in political courses, and how does its implementation affect students' self-directed learning abilities?

The significant improvement in students' political ability test scores after implementing the SPOC teaching model reflects a positive impact on their self-directed learning, as shown by the mean deviation, standard deviation, and variance, as well as the paired T-test results. This outcome aligns closely with Mastery Learning Theory (Bloom, 1968), which emphasizes that, given enough time and appropriate support, all students can achieve a high level of mastery in a subject. The SPOC model provides students with the flexibility to learn at their own pace, enabling them to reach mastery by allowing more time for those who require it and facilitating quicker advancement for those who grasp the material more quickly. The improvement in students' political knowledge and the stability of their grades after the intervention demonstrate that the SPOC teaching model effectively addresses individual learning needs, enhancing students' Self-Directed Learning abilities and helping them overcome initial challenges. This confirms the relevance of Mastery Learning Theory to SPOC-based education in political courses (Wu & Huang, 2024).

The significant and consistent improvement in students' performance in the post-test not only highlights the enhancement in their political knowledge but also underscores a marked development in their ability to learn independently. This is indicative of how the SPOC teaching model fosters active engagement in the learning

process, encouraging students to take ownership of their learning and effectively utilize online resources for self-directed learning and assessment. The findings align with Constructivist Learning Theory (Piaget, 1972; Vygotsky, 1978), which emphasizes learners' active role in constructing knowledge through interaction and engagement with the content. In the context of SPOC, students' independent learning is supported by flexible online resources that allow them to explore at their own pace, in line with the core principles of constructivism. Furthermore, the collaborative and interactive nature of SPOC fosters a social learning environment in which students can construct knowledge together, thereby deepening their understanding of political concepts. This supports the notion that SPOC promotes not only knowledge acquisition but also the development of critical self-directed learning skills, as highlighted by Liu & Li (2022).

3. Implications for teaching practice: Our research findings support the effectiveness of using the SPOC teaching model in political courses. In the future, educators can further explore how to optimize the design and implementation of SPOC teaching models to better meet students' learning better needs and enhance their self-directed learning abilities. This conclusion is supported by previous studies advocating continuous optimization of SPOC design to meet students' diverse learning needs (Tang, 2024). By leveraging the advantages of the SPOC model, educators can better support students in becoming more autonomous learners, as prior research suggests (Ye & Zeng, 2024).

Part 3: to answer the research question 3:What are students' perspectives towards the SPOC teaching model in enhancing their self-directed learning abilities in political courses?

The results in Table 4-5 indicate that the SPOC teaching model can significantly improve students' self-directed learning ability in political courses. The experimental group showed an overall mean score of $\bar{x}=4.28$ with a standard deviation of 0.70, which is interpreted as 'satisfied.' This high level of satisfaction reflects the positive impact of the SPOC teaching model on students' engagement in their learning process. The students in the experimental group expressed great satisfaction with all aspects of their learning experience. This result aligns with previous studies, which have shown that the SPOC model enhances students' engagement and motivation

through personalized learning, flexible resources, and increased interaction (Wu & Huang, 2024).

From the perspective of Mastery Learning Theory, the SPOC model's ability to support individualized learning pathways is crucial. It allows students to progress at their own pace, ensuring they master political knowledge before moving on to more complex content. The model's flexibility enables students to tailor their learning experiences to address their strengths and weaknesses, aligning with the idea that all students can achieve mastery given sufficient time and the right resources (Bloom, 1968).

In line with Constructivist Learning Theory, students' satisfaction with the SPOC activities underscores the model's interactive nature. It encourages students to actively construct their understanding of political concepts through both individual exploration of online resources and collaborative classroom discussions. This active engagement fosters deeper learning and helps students to build connections between new information and their prior knowledge (Piaget, 1972; Vygotsky, 1978).

Additionally, the SPOC model supports Connectivism Learning Theory, as it promotes the idea that knowledge is distributed across networks. The flexibility of the SPOC environment allows students to connect with a range of resources, peers, and instructors, facilitating the flow and creation of new knowledge. This supports the idea that learning is not just about acquiring information but about developing the ability to connect various sources of knowledge to form a coherent understanding (Siemens, 2005).

Overall, the SPOC teaching model significantly enhances students' ability to set learning goals and organize their study strategies, which are crucial components of self-directed learning (Song, 2024). By promoting active engagement, flexibility, and interaction, the SPOC model fosters an environment where students take ownership of their learning, leading to greater satisfaction and improved learning outcomes.

The experimental group could explain the following interesting issues:

1. "The SPOC teaching model has helped me manage my study time more effectively." The interpretation was "satisfied."

This result confirms that the SPOC model facilitates time management by allowing students to control their learning pace, as noted in earlier studies, which emphasized how flexible learning schedules in SPOC environments help students manage their time more efficiently (Wang & Zhang, 2024).

2. "The SPOC model has deepened my understanding of political course content." The interpretation was "satisfied."

This result confirms that the SPOC model promotes deep learning by combining theoretical content with practical exercises, enabling students to understand complex topics more thoroughly (Zhang, 2022; Liu & Li, 2022).

3. "The SPOC model has improved my ability to reflect on my learning process." The interpretation was "satisfied."

This result confirms that self-assessment and reflection align with prior research, which shows that SPOC learners tend to engage in more metacognitive processes, such as evaluating their learning strategies and adjusting them accordingly (Ye & Zeng, 2024; Tang, 2024).

The results of the experimental group indicate that students are satisfied with the SPOC teaching mode for enhancing their independent learning in political courses. The perspectives of the experimental group demonstrate the effectiveness of the SPOC teaching model in improving the Self-Directed Learning abilities of political students. Good time management strategies, deep learning, critical thinking, self-evaluation, and reflection all contribute to increased perspectives and better learning outcomes. Educators should consider integrating the SPOC teaching model into their teaching practices to enhance student engagement and perspectives, ultimately improving academic performance and lifelong learning skills. The incorporation of SPOC aligns with findings that it significantly boosts academic outcomes and supports self-directed learning by fostering a proactive learning environment (Wu & Huang, 2024).

5.3 Implications for Practice

These findings are of great significance for political education practice, particularly given the effectiveness of the SPOC (Small Private Online Course)

teaching model in enhancing students' self-directed learning in political courses. The research results emphasize the effectiveness of the self-directed learning strategies embedded in the SPOC model, which can not only enhance students' self-directed learning abilities but also improve their political knowledge level.

They provided valuable insights for teachers, helping them adjust their teaching methods to adapt to individual differences among students in the context of political education. Research also indicates a strong correlation among students' self-directed learning strategies, their academic performance, and the teaching models employed.

Therefore, incorporating self-regulation strategies into the SPOC teaching model of political courses can enhance students' learning experience and outcomes. Future research should delve deeper into the impact of SPOC models in different educational stages and disciplines, with a particular focus on how to customize these models to meet the diverse learning needs of students in political courses.

In addition, longitudinal studies provided a deeper understanding of the long-term benefits of self-regulated learning in political education for students' academic progress and personal growth. By integrating these insights into political education practice, educators can better equip students with fundamental skills for lifelong learning and success across political, academic, and professional fields. The application of the SPOC model enriches Self-Directed Learning strategies, not only cultivating students' Self-Directed Learning abilities but also developing their critical thinking and deep analysis skills, laying a solid foundation for their future endeavors.

This study has several limitations:

Sample limitations: The study sample is limited to middle schools in one region and may not fully reflect conditions in other areas and schools.

Methodological limitations: Due to time and resource constraints, the study primarily relies on questionnaires and observations, lacking diverse data collection methods, such as interviews and computer-assisted methods.

Observation bias: During the observation process, students' responses may be influenced by the researcher's expectations, thereby compromising the objectivity of the observation.

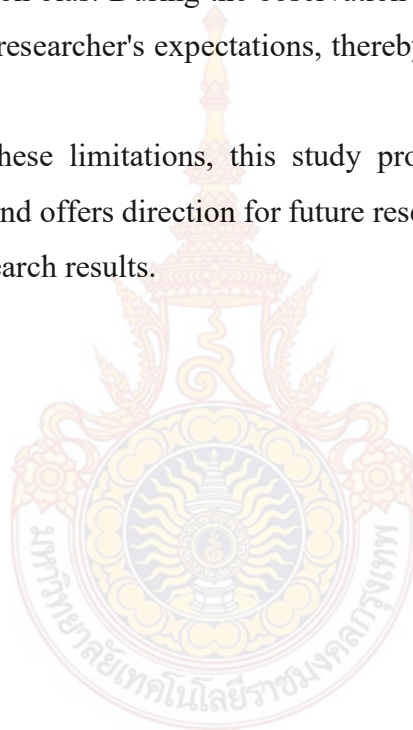
Despite these limitations, this study provides valuable insights for educational practice and suggests directions for future research to enhance the generalizability and credibility of its results.

Sample limitation: The research sample is limited to vocational colleges in one region and may not fully reflect conditions in other areas and schools.

Limitations of the methodology: Due to time and resource constraints, this study primarily relies on questionnaires and observations, lacking diverse data collection and analysis methods, such as interviews and computer-aided methods.

Observation bias: During the observation process, students' reactions may be influenced by the researcher's expectations, thereby affecting the objectivity of the observation.

Despite these limitations, this study provides a valuable reference for educational practice and offers direction for future research to enhance the universality and credibility of research results.



REFERENCES

- Bloom, B. S. (1968). Learning for mastery. *Evaluation Comment*, 1(2), 1–12.
- Fox, A. (2013). From MOOCs to SPOCs. *Communications of the ACM*, 56(12), 38–40.
- Harvard University. (n.d.). CS50: Introduction to computer science. Retrieved January 24, 2024, from <https://cs50.harvard.edu/x/>
- Jonassen, D. H. (1991). Evaluating constructivist learning. *Educational Technology*, 31(9), 28–33.
- Kang, Y. Q. (2014). The "post-MOOC era" of online education: An analysis of SPOC. *Tsinghua Journal of Education*, 35(1), 85–93.
- Massachusetts Institute of Technology. (n.d.). Physics courses. Retrieved from <https://ocw.mit.edu>
- Piaget, J. (1972). *The principles of genetic epistemology*. New York, NY: Basic Books.
- Stanford University. (n.d.). History courses. Retrieved from <https://explorecourses.stanford.edu>
- Sun, J. L., & Zheng, C. L. (2021). International research on the evaluation of self-directed learning abilities: Status, trends, and implications. *Comparative Education Review*, 1(1), 67–84.
- Tang, J. P. (2024). Practical research on ideological and political course teaching in universities based on the SPOC model. *Jiangnan University of Film and Television Arts*, 1, 88–92.
- Tang, Y. H. (2021). Exploring the SPOC-based blended teaching model for high-quality courses. *Science & Technology Vision*, 11, 61–62.
- The Juilliard School. (n.d.). Music courses. Retrieved from <https://www.juilliard.edu>
- University of California, Berkeley. (n.d.). Sociology courses. Retrieved from <https://sociology.berkeley.edu>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wang, J. X., & Zhang, N. (2024). A brief discussion on the application of the innovative SPOC flipped classroom in ideological and political courses. *Taiyuan University of Science and Technology, School of Marxism*, 1, 102–106.

- Wang, Y. Q. (2024). Application of the flipped classroom teaching model based on the SPOC platform: A case study of the "Principles of Communication" course. *Nanjing University of Posts and Telecommunications*, 1, 56–62.
- Wu, B. L., & Huang, X. L. (2024). Exploration of the "online + offline" teaching model of the SPOC flipped classroom in university ideological and political courses: A case study of the "Outline" course. *Guangxi Normal University, School of Marxism*, 1, 45–50.
- Wu, Z. C. (2017). Exploration of a blended teaching model reform for ideological and political theory courses in universities based on SPOC. *Research on Ideological and Political Education*, 33(5), 56–59.
- Ye, J., & Zeng, Y. L. (2020). Integration and embedding of the SPOC + MOOC education model in university ideological and political education. *Lanzhou University of Technology, School of Marxism*, 1, 134–139. <https://doi.org/10.16103/j.cnki.21-1582/c.2020.03.013>
- Ye, J., & Zeng, Y. L. (2024). Exploration of the integration of the SPOC + MOOC model in university ideological and political education. *Lanzhou University of Technology, School of Marxism*, 1, 115–120.
- Zhang, H. F. (2024). Review and prospects: Knowledge map analysis of domestic research on the SPOC teaching model in ideological and political courses. *Changzhou Institute of Industrial Technology, Jiangsu Province*, 1, 78–82.
- Zhang, M. R. (2022). Application research on the dual-line blended model of ideological and political education in universities. *Minnan Normal University, Center for Information Management and Construction*, 1, 60–65. <https://doi.org/10.13971/j.cnki.cn23-1435/c.2022.12.035>
- Zhao, J., & Hu, X. H. (2016). An exploration of the application of the SPOC model in ideological and political theory courses in universities. *Research on Ideological and Political Education*, 32(4), 59–62.
- Zhi, T. Z., & Mingzhuo, L. (2014). The new pattern of online learning in the "post-MOOC" era. *Open Education Research*, 20(3), 36–43.

APPENDICES

Table 3.4.1 Questionnaire for Answering RQ.1

No.	Questions	Level					Remarks
		5	4	3	2	1	
1	Time Management						
(1)	I can effectively create and follow a study schedule for my political studies.						
(2)	I allocate my study time efficiently across different topics in the "Current Affairs and Policies" course.						
(3)	I manage to meet my study deadlines for assignments and projects.						
(4)	I prioritize my study tasks based on their importance and the deadlines associated with them.						
(5)	I rarely find myself cramming for tests or assignments at the last minute.						
Total							
2	Information Acquisition and Filtering						
(1)	I can independently find and select reliable sources of information for my political studies.						
(2)	I critically evaluate the quality and relevance of the information I acquire.						
(3)	I can effectively organize and integrate information from multiple sources.						
(4)	I regularly cross-check information from different sources to ensure its accuracy.						
(5)	I feel confident in distinguishing between credible and non-credible sources of information.						
Total							
3	Self-Directed Learning Strategies						
(1)	I use various learning strategies to understand and retain the course material.						
(2)	I adapt my learning strategies based on the complexity of the topics covered.						

No.	Questions	Level					Remarks
		5	4	3	2	1	
(3)	I regularly review and revise the course content to deepen my understanding.						
(4)	I experiment with different study techniques to find what works best for me.						
(5)	I utilize online resources, including videos and articles, to supplement my learning.						
Total							
4	Deep Learning and Critical Thinking						
(1)	I strive to understand the underlying principles and concepts in political issues, rather than just memorizing facts.						
(2)	I can critically analyze and evaluate different perspectives on political issues.						
(3)	I can apply my knowledge to solve complex political problems and scenarios.						
(4)	I aim to comprehend the broader context of the political issues I examine.						
(5)	I feel comfortable questioning and challenging ideas presented in the course.						
Total							
5	Interaction and Collaboration						
(1)	I actively participate in online discussions and collaborate with peers on assignments.						
(2)	I seek feedback from my peers and instructors to improve my understanding.						
(3)	I contribute constructively to group activities and class discussions.						
(4)	I find value in learning from my peers' perspectives.						
(5)	I feel confident in leading group discussions or activities.						
Total							
6	Self-Evaluation and Reflection						
(1)	I regularly assess my progress and						

No.	Questions	Level					Remarks
		5	4	3	2	1	
	adjust my study methods accordingly.						
(2)	I reflect on my learning experiences to identify areas for improvement.						
(3)	I am aware of my strengths and weaknesses in my approach to learning.						
(4)	I set specific goals for my personal and academic development.						
(5)	I regularly seek feedback to evaluate my performance and progress.						
Total							
Over all Total							

Data collection

5= Strongly Agree

4= Agree

3= Moderate

2= Disagree

1= Strongly Disagree

Data analysis

The rating range is 1.00-5.00:

1.00 - 1.50: Strongly Disagree

1.51 - 2.50: Disagree

2.51 - 3.50: Moderate

3.51 - 4.50: Agree

4.51 - 5.00: Strongly Agree

Table 3.5.1 Questionnaire (IOC) for Answer RQ.1

No	Content	The Index of Item-Objective Congruence		
		+1	0	-1
1	Time Management			
(1)	I can effectively create and follow a study schedule for my political studies.			
(2)	I allocate my study time efficiently across different topics in the "Current Affairs and Policies" course.			
(3)	I manage to meet my study deadlines for assignments and projects.			
(4)	I prioritize my study tasks based on their importance and the deadlines associated with them.			
(5)	I rarely find myself cramming for tests or assignments at the last minute.			
2	Information Acquisition and Filtering			
(1)	I can independently find and select reliable sources of information for my political studies.			
(2)	I critically evaluate the quality and relevance of the information I acquire.			
(3)	I can effectively organize and integrate information from multiple sources.			
(4)	I regularly cross-check information from different sources to ensure its accuracy.			
(5)	I feel confident in distinguishing between credible and non-credible sources of information.			
3	Self-Directed Learning Strategies			
(1)	I use various learning strategies to understand and retain the course material.			
(2)	I adapt my learning strategies based on the complexity of the topics covered.			
(3)	I regularly review and revise the course content to deepen my understanding.			
(4)	I experiment with different study techniques to find what works best for me.			
(5)	I utilize online resources, including videos and articles, to supplement my learning.			
4	Deep Learning and Critical Thinking			
(1)	I strive to understand the underlying principles and concepts in political issues, rather than just memorizing facts.			
(2)	I can critically analyze and evaluate different perspectives on political issues.			

		The Index of Item- Objective Congruence		
(3)	I can apply my knowledge to solve complex political problems and scenarios.			
(4)	I aim to comprehend the broader context of the political issues I examine.			
(5)	I feel comfortable questioning and challenging ideas presented in the course.			
5	Interaction and Collaboration			
(1)	I actively participate in online discussions and collaborate with peers on assignments.			
(2)	I seek feedback from my peers and instructors to improve my understanding.			
(3)	I contribute constructively to group activities and class discussions.			
(4)	I find value in learning from my peers' perspectives.			
(5)	I feel confident in leading group discussions or activities.			
6	Self-Evaluation and Reflection			
(1)	I regularly assess my progress and adjust my study methods accordingly.			
(2)	I reflect on my learning experiences to identify areas for improvement.			
(3)	I am aware of my strengths and weaknesses in my approach to learning.			
(4)	I set specific goals for my personal and academic development.			
(5)	I regularly seek feedback to evaluate my performance and progress.			

Assessor : Position :

Workplace :

Table 3.4.2 Lesson Plan (IOC) for Answer RQ2

An appendix presents some information related to the article's research and is consolidated into an appendix, such as lesson plans, questionnaires, and tests

1. Lesson Plan 1.5

No.	Content	The Index of Item-Objective Congruence		
		+1	0	-1
1	Content			
2	Objective			
3	Teaching method			
4	Feedback Collection and Evaluation			
5	Summary			

Assessor : Position :
 Workplace :

The Test

Lesson Plan 1: Globalization and International Relations

- Which of the following is a key characteristic of globalization?
 - Increased national isolation
 - Decreased international trade
 - Increased interconnectedness of economies (Correct Answer)
 - Decline in technology use
- Which organization is primarily responsible for regulating international trade?
 - United Nations
 - World Trade Organization (Correct Answer)
 - International Monetary Fund
 - World Health Organization
- Globalization has led to:
 - A decrease in cultural exchanges
 - Greater economic interdependence among nations (Correct Answer)
 - Less communication between countries
 - The rise of local economies over global ones
- Which of the following is an example of globalization?
 - A local farmer's market
 - A multinational corporation operating in several countries (Correct Answer)
 - A community radio station
 - A regional sports event

Lesson Plan 2: Domestic Economic Situation and Reform Policies

5. Which of the following best describes economic reform?
- A temporary economic policy change
 - A comprehensive change in economic policies to improve the economy (Correct Answer)
 - A focus on only one sector of the economy
 - A minor adjustment to tax rates
6. What is a common goal of economic reform?
- To decrease government revenue
 - To increase economic efficiency and growth (Correct Answer)
 - To eliminate private businesses
 - To increase unemployment
7. Which policy is typically associated with economic reform?
- Decreasing international trade
 - Deregulation of industries (Correct Answer)
 - Increasing government control over the economy
 - Establishing new trade barriers
8. The term "market liberalization" in the context of economic reform refers to:
- Increasing government regulation
 - Reducing restrictions on trade and business (Correct Answer)
 - Closing markets to foreign investment
 - Nationalizing private industries

Lesson Plan 3: Social Governance and Rule of Law Construction

9. What does "rule of law" mean?
- The government is above the law
 - All individuals and institutions are accountable to the law (Correct Answer)
 - Laws do not apply to everyone equally
 - Laws are optional guidelines
10. Social governance primarily involves:
- The management of public services by private companies
 - The process of creating and implementing policies for social order (Correct Answer)
 - The reduction of government involvement in society
 - The control of social media platforms
11. Which of the following is essential for effective social governance?
- Strict enforcement of laws without public input
 - Active participation of citizens in decision-making (Correct Answer)
 - Limiting transparency in governance
 - Expanding government surveillance

12. The construction of the rule of law aims to:
- a) Increase arbitrary decision-making
 - b) Ensure fairness and justice in society (Correct Answer)
 - c) Reduce legal protections for minorities
 - d) Limit access to the judicial system

Lesson Plan 4: Environmental Protection and Sustainable Development Policies

13. What is the primary goal of environmental protection policies?
- a) To allow unrestricted use of natural resources
 - b) To conserve natural resources and protect ecosystems (Correct Answer)
 - c) To prioritize economic growth over environmental concerns
 - d) To delay action on climate change
14. Sustainable development aims to:
- a) Deplete natural resources for immediate gains
 - b) Meet current needs without compromising future generations (Correct Answer)
 - c) Focus only on economic growth
 - d) Reduce investment in renewable energy
15. Which of the following is a common strategy in sustainable development?
- a) Promoting the use of fossil fuels
 - b) Encouraging renewable energy and conservation (Correct Answer)
 - c) Increasing carbon emissions
 - d) Ignoring environmental impact assessments
16. The concept of the "triple bottom line" in sustainable development includes:
- a) Profits, population, and policy
 - b) People, planet, and profit (Correct Answer)
 - c) Politics, power, and progress
 - d) Productivity, privacy, and profit

Lesson Plan 5: The Belt and Road Initiative and International Cooperation

17. The Belt and Road Initiative (BRI) primarily aims to:
- a) Isolate China from the global economy
 - b) Strengthen global trade and infrastructure networks (Correct Answer)
 - c) Promote unilateral trade agreements
 - d) Reduce International cooperation
18. Which region is most significantly impacted by the BRI?
- a) North America
 - b) Central Asia (Correct Answer)
 - c) Antarctica
 - d) Oceania

19. What is a key component of international cooperation under the BRI?
- a) Military alliances
 - b) Economic partnerships and infrastructure development (Correct Answer)
 - c) Cultural isolationism
 - d) Trade restrictions
20. One potential benefit of the BRI for participating countries is:
- a) Decreased access to global markets
 - b) Enhanced infrastructure and connectivity (Correct Answer)
 - c) Increased national debt without any benefits
 - d) Reduced foreign investments

Assessor :Position :
Workplace :



Table 3.5.2 Paper test (IOC) for answer RQ.2

No	Content	The Index of Item-objective Congruence		
		+1	0	-1
1	Which of the following is a key characteristic of globalization?			
	A.Increased national isolation			
	B.Decreased international trade			
	C.Increased interconnectedness of economies			
2	Which organization is primarily responsible for regulating international trade?			
	A.United Nations			
	B.World Trade Organization			
	C.International Monetary Fund			
3	Globalization has led to :			
	A decrease in cultural exchanges			
	B.Greater economic interdependence among nations			
	C.Less communication between countries			
4	Which of the following is an example of globalization?			
	A local farmer's market			
	A multinational corporation operating in several countries			
	C.A. community radio station			
5	Which of the following best describes economic reform?			
	A temporary economic policy change			
	B.A comprehensive change in economic policies to improve the economy			
	C.A. focuses on only one sector of the economy			
6	What is a common goal of economic reform?			
	A.To decrease government revenue			
	B.To increase economic efficiency and growth			
	C. To eliminate private businesses			

Table 3.5.2 Paper test (IOC) for answer RQ.2

No	Content	The Index of Item-objective Congruence		
		+1	0	-1
	D.To increase unemployment			
7	Which policy is typically associated with economic reform?			
	A. Decreasing international trade			
	B. Deregulation of industries			
	C. Increasing government control over the economy			
8	D. Establishing new trade barriers			
	The term "market liberalization" in the context of economic reform refers to:			
	A.Increasing government regulation			
	B.Reducing restrictions on trade and business			
9	C.Closing markets to foreign investment			
	D.Nationalizing private industries			
	What does "rule of law" mean?			
	A.The government is above the law			
10	B.All individuals and institutions are accountable to the law			
	C. Laws do not apply to everyone equally			
	D. Laws are optional guidelines			
	Social governance primarily involves:			
11	A.The management of public services by private companies			
	B.The process of creating and implementing policies for social order			
	C.The reduction of government involvement in society			
	D.The control of social media platforms			
11	Which of the following is essential for effective social governance?			
	A.Strict enforcement of laws without public input			
	B.Active participation of citizens in decision-making			
	C.Limiting transparency in governance			
	D.Expanding government surveillance			

12	The construction of the rule of law aims to:			
	A. Increase arbitrary decision-making			
	B. Ensure fairness and justice in society			
	C. Reduce legal protections for minorities			
	D. Limit access to the judicial system			

13	What is the primary goal of environmental protection policies?			
	A. To allow unrestricted use of natural resources			
	B. To conserve natural resources and protect ecosystems			
	C. To prioritize economic growth over environmental concerns			
	D. To delay action on climate change			
14	Sustainable development aims to:			
	A. Deplete natural resources for immediate gains			
	B. Meet current needs without compromising future generations			
	C. Focus only on economic growth			
	D. Reduce investment in renewable energy			
15	Which of the following is a common strategy in sustainable development?			
	A. Promoting the use of fossil fuels			
	B. Encouraging renewable energy and conservation			
	C. Increasing carbon emissions			
	D. Ignoring environmental impact assessments			
16	The concept of the "triple bottom line" in sustainable development includes:			
	A. Profits, population, and policy			
	B. People, planet, and profit			
	C. Politics, power, and progress			
	D. Productivity, privacy, and profit			
17	The Belt and Road Initiative (BRI) primarily aims to:			
	A. Isolate China from the global economy			
	B. Strengthen global trade and infrastructure networks			
	C. Promote unilateral trade agreements			
	D. Reduce international cooperation			
18	Which region is most significantly impacted by the BRI?			
	A. North America			
	B. Central Asia			

	C.Antarctica			
	D.Oceania			
19	What is a key component of international cooperation under the BRI?			
	A.Military alliances			
	B. Economic partnerships and infrastructure development			
	C. Cultural isolationism			
	D. Trade restrictions			
20	One potential benefit of the BRI for participating countries is:			
	A. Decreased access to global markets			
	B. Enhanced infrastructure and connectivity			
	C. Increased national debt without any benefits			
	D. Reduced foreign investments			

Table 3.4.4 Perspective Questionnaire for Answer RQ3

No.	Questions	Level					Remarks
		5	4	3	2	1	
1	Students' views on enhancing their time management skills in political classrooms through the SPOC teaching model						
(1)	The SPOC teaching model has helped me manage my study time more effectively.						
(2)	The SPOC teaching model has helped me manage my study time more effectively.						
(3)	The flexibility of the SPOC model allows me to allocate time to my studies more efficiently.						
Total							
2	Students' views on enhancing their Information Acquisition and filtering skills in political classrooms through the SPOC teaching model						
(4)	The SPOC model has improved my ability to acquire and filter relevant information for my studies.						
(5)	I am better at distinguishing important information from irrelevant content due to the SPOC model.						
(6)	The resources provided in the SPOC model help guide my information-						

No.	Questions	Level					Remarks
		5	4	3	2	1	
	gathering efforts.						
Total							
3	Students' views on enhancing their Self-Directed Learning Strategies in political classrooms through the SPOC teaching model						
(7)	The SPOC model has helped me develop more effective Self-Directed Learning strategies.						
(8)	I have become more independent in my learning due to the SPOC teaching model.						
(9)	The SPOC model encourages me to take initiative in my studies.						
Total							
4	Students' views on enhancing their Deep Learning and Critical Thinking in political classrooms through the SPOC teaching model						
(10)	The SPOC model has deepened my understanding of political course content.						
(11)	I have improved my critical thinking skills through the SPOC model.						
(12)	The interactive components of the SPOC model enhance my critical thinking about complex issues.						
Total							
5	Students' views on enhancing their Interaction and Collaboration in political classrooms through the SPOC teaching model						
(13)	The SPOC model promotes effective interaction and collaboration with my peers.						
(14)	I have learned to work more effectively in groups due to the SPOC teaching model.						
(15)	The SPOC model encourages more meaningful discussions and exchanges of ideas.						
Total							
6	Students' views on enhancing their Self-Evaluation and Reflection in political classrooms through the SPOC teaching model						
(16)	The SPOC model has improved my ability to reflect on my learning process.						
(17)	I have become more aware of my strengths and weaknesses in learning through the SPOC model.						

No.	Questions	Level					Remarks
		5	4	3	2	1	
(18)	The SPOC model encourages regular self-assessment and adjustment of my learning strategies.						
Total							
Over all Total							

Data collection
 5 = Strongly Satisfied
 4 = Satisfied
 3 = Neutral
 2 = Dissatisfied
 1 = Strongly Dissatisfied

Data analysis

The rating range is 1.00-5.00:

A mean score of 4.51 - 5.00 means "very satisfied."

A mean score of 3.51 - 4.50 means "satisfied."

A mean score of 3.01 - 3.50 means "moderate."

A mean score of 1.51 - 3.00 means "dissatisfied."

A Mean score of 1.00 - 1.50 means "very dissatisfied."

Table 3.5.3 Perspective Questionnaire(IOC) for Answer RQ.3

No	Content	The Index of Item-objective Congruence		
		+1	0	-1
1	Students' views on enhancing their time management skills in political classrooms through the SPOC teaching model			
(1)	The SPOC teaching model has helped me manage my study time more effectively.			
(2)	The SPOC teaching model has helped me manage my study time more effectively.			
(3)	The flexibility of the SPOC model allows me to allocate time to my studies more efficiently.			
2	Students' views on enhancing their Information Acquisition and filtering skills in political classrooms through the SPOC teaching model			
(4)	The SPOC model has improved my ability to acquire and filter relevant information for my studies.			

No	Content	The Index of Item-objective Congruence		
		+1	0	-1
(5)	I am better at distinguishing important information from irrelevant content due to the SPOC model.			
(6)	The resources provided in the SPOC model help guide my information-gathering efforts.			
3	Students' views on enhancing their Self-Directed Learning Strategies in political classrooms through the SPOC teaching model			
(7)	The SPOC model has helped me develop more effective Self-Directed Learning strategies.			
(8)	I have become more independent in my learning due to the SPOC teaching model.			
(9)	The SPOC model encourages me to take initiative in my studies.			
4	Students' views on enhancing their Deep Learning and Critical Thinking in political classrooms through the SPOC teaching model			
(10)	The SPOC model has deepened my understanding of political course content.			
(11)	I have improved my critical thinking skills through the SPOC model.			
(12)	The interactive components of the SPOC model enhance my critical thinking about complex issues.			
5	Students' views on enhancing their Interaction and Collaboration in political classrooms through the SPOC teaching model			
(13)	The SPOC model promotes effective interaction and collaboration with my peers.			
(14)	I have learned to work more effectively in groups due to the SPOC teaching model.			
(15)	The SPOC model encourages more meaningful discussions and exchanges of ideas.			
6	Students' views on enhancing their Self-Evaluation and Reflection in political classrooms through the SPOC teaching model			
(16)	The SPOC model has improved my ability to reflect on my learning process.			
(17)	I have become more aware of my strengths and weaknesses in learning through the SPOC model.			
(18)	The SPOC model encourages regular self-assessment and adjustment of my learning strategies.			

Assessor : Position :
 Workplace :