THE INFLUENCING FACTORS OF FLIPPED CLASSROOM PARTICIPATION OF MARKETING STUDENTS AT HUBEI PROVINCE FIRST SECONDARY VOCATIONAL SCHOOL

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This Independent Study has been Approved as a Partial Fulfillment of the Requirements for the Degree of Master of Business Administration

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ABSTRACT

Based on a review of relevant literature on students' classroom participation, this study delves into the influencing factors of classroom participation, analyzes the relationships between these factors and students' classroom participation, and offers targeted improvement suggestions to provide practical references and theoretical support for the modernization of secondary vocational education. This study explores the impact of five factors including classroom questioning, group discussions, pre-class preparation, note-taking during class, and learning interest, on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.

This study employed a quantitative research methodology. A total of 351 questionnaires were distributed, with 327 valid responses received, yielding a response rate of 93.2%. The findings reveal that classroom questioning, group discussions, pre-class preparation, note-taking during class, and learning interest significantly enhance flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School. Based on the findings, the following recommendations are proposed: (1) Enhancing effective questioning by teachers in flipped classrooms, (2) Strengthening the group discussion learning model, (3) Enhancing students' pre-class self-learning abilities, (4) Strengthening students' secondary processing and review of note-taking during class, (5) Enhancing students' learning interest in course content.

Keywords: flipped classrooms, classroom participation, secondary vocational education, marketing students

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XIANG MEIFANG

DECLARATION

I, Ji, hereby certify that the work embodied in this independent study entitled *"The Influencing Factors of Flipped Classroom Participation of Marketing Students at Hubei Province First Secondary Vocational School"* is result of original research and has not been submitted for a higher degree to any other university or institution.

Xiang Meifang
March 3, 2025

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Chapter 1 Introduction

1.1 Background of the Study

Against the backdrop of rapid advancements in technology, information technology, and globalization, the cultivation of innovative spirit and innovative talents has become the most pressing need of society. Traditional classroom teaching models can no longer meet the demand for innovative talents, and the new curriculum reform proposes actively fostering students' abilities in active participation, enthusiasm for research, and active communication and cooperation (Qin, 2016). This necessitates that teachers no longer confine themselves to traditional teaching methods but instead strive to explore innovative teaching approaches to enhance students' classroom participation (Li, 2014).

Improving classroom participation aligns with the needs of modern educational development. In traditional classrooms, teachers have been the main focus of instruction, with students exhibiting limited initiative and leaning towards passive learning, significantly diminishing their learning interest and motivation (Zhang, et al., 2015). Contemporary secondary vocational students have reached a considerable level of intellectual maturity and possess the ability to solve problems in the classroom. They aspire to express their needs and ideas (Zhang & Zhang 2012). The emergence of flipped classrooms provides an excellent platform for secondary vocational students to learn and communicate, transitioning from a "teacher-centered" to a "student-centered" approach, where teachers and students coexist in a space characterized by "openness, sharing, interaction, and collaboration" (Zhang et al., 2012). The advent of the flipped classroom teaching model not only injects new vitality into traditional classrooms but also grants students more personalized learning experiences, fostering their ability to solve problems and enhancing their capacity for teamwork and mutual assistance. More importantly, this teaching model aids in developing students' innovative thinking and practical abilities, thereby improving their classroom participation in flipped classrooms.

To effectively improve classroom participation of secondary vocational students and enhance their participation in flipped classrooms, this study delves into the factors influencing flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School and propose strategies to enhance students' classroom participation in flipped classrooms based on these findings.

1.2 Questions of the Study

This study aims to investigate the factors influencing flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School, particularly focusing on how classroom questioning, group discussions, pre-

class preparation, note-taking during class, critical thinking, knowledge transfer, learning interest, and learning anxiety collectively impact students' flipped classroom participation.

(1) Does classroom questioning influence flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School?

(2) Does group discussion influence flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School?

(3) Does pre-class preparation influence flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School?

(4) Does note-taking during class influence flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School?

(5) Does learning interest influence flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School?

1.3 Objectives of the Study

Although scholars have paid considerable attention to "classroom participation," there has been limited exploration into the factors influencing classroom participation of secondary vocational students in the context of flipped classrooms. This study attempts to construct a model of factors influencing classroom participation of marketing students at Hubei Province First Secondary Vocational School in the flipped classroom environment and propose comprehensive coping strategies. Additionally, it provides effective approaches and actionable strategies to stimulate secondary vocational students' interest in classroom participation and promote their active and in-depth engagement.

(1) To explore the impact of classroom questioning on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.

(2) To explore the impact of group discussions on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.

(3) To explore the impact of pre-class preparation on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.

(4) To explore the impact of note-taking during class on flipped classroom

participation of marketing students at Hubei Province First Secondary Vocational School.

(5) To explore the impact of learning interest on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.

1.4 Scope of the Study

This study conducted a questionnaire survey of all enrolled students majoring in Marketing at Hubei Province First Secondary Vocational School, encompassing a total of 351 students across 6 teaching classes in 3 grades. The study employed a full-sample survey method to ensure comprehensive coverage of key demographic variables including gender, grade, student leadership status, and family monthly income level, thereby guaranteeing the representativeness of the research data and the reliability of the analysis results. Through this all-inclusive research design, a comprehensive understanding of the current learning status of marketing students in flipped classrooms was achieved, providing a solid data foundation for subsequent analysis of influencing factors.

The study focused on the flipped classrooms teaching model, systematically evaluating core observation indicators including students' participation in classroom questioning, contribution to group discussions, completion of pre-class preparation, quality of note-taking during class, and level of learning interest through multi-dimensional scales. Meanwhile, the study integrated SPSS statistical analysis software to explore the mechanisms of action between various influencing factors and classroom participation through correlation analysis and multiple linear regression methods. Based on the findings, targeted teaching strategies for optimizing the implementation effectiveness of flipped classrooms were proposed. To ensure the scientific and efficient collection of data, this study utilized the Wenjuanxing platform for survey implementation. Leveraging its intelligent questionnaire design interface, convenient multi-channel distribution capabilities, and robust real-time data cleaning and analysis modules, the platform effectively ensured the reliability and validity of the research data, as well as the efficiency of data recovery.

1.5 Significance of the Study

1.5.1 Theoretical Significance

At the theoretical level, most existing research on classroom participation within the context of flipped classrooms (FCs) primarily focuses on primary, secondary, and undergraduate education, with relatively scarce studies conducted in the field of

secondary vocational education, particularly in marketing students. This study centers on the marketing major at Hubei Province First Secondary Vocational School, employing empirical research method of questionnaire survey to collect first-hand data on classroom participation of secondary vocational students in FCs. This not only fills the theoretical gap in this research area, providing a solid data foundation for subsequent studies but also contributes to the construction of a classroom participation theoretical model tailored to the cognitive patterns and learning needs of secondary vocational students, fostering innovative development in secondary vocational education theory. Furthermore, by identifying the key factors influencing classroom participation in FCs for secondary vocational marketing students, this study offers a theoretical basis for optimizing the FC teaching model in secondary vocational education, facilitating the effective implementation of a "student-centered" teaching philosophy, and promoting the deep integration of secondary vocational education theory with teaching reform.

1.5.2 Practical Significance

In practical terms, this study holds significant implications. From the perspective of improving teaching quality, quantitatively analyzing the current status and influencing factors of classroom participation of secondary vocational students in FCs can provide teachers with precise directions for teaching improvement, such as optimizing classroom activity design, reasonably adjusting teaching pace, and enhancing teacher-student interaction, thereby effectively enhancing the teaching effectiveness of marketing courses. Regarding student ability development, the research findings assist teachers in designing differentiated teaching strategies based on the learning characteristics of secondary vocational students, stimulating students' learning motivation through differentiated instruction, and cultivating their autonomous and collaborative learning abilities, laying a solid foundation for their future career development. Additionally, this study, closely aligns with the actual teaching environment at Hubei Province First Secondary Vocational School, proposes highly actionable strategies for enhancing participation, which can serve as a valuable reference for other secondary vocational schools, both in marketing students and beyond, promoting the localized application of the FC model in secondary vocational education. Moreover, by analyzing teacher behavior factors influencing student participation, this study provides pathways for secondary vocational teachers to reflect on and improve their teaching practices, such as enhancing classroom management skills, optimizing teaching resource design, and improving teacher-student communication techniques, thereby promoting the professional development of secondary vocational teaching staff. Finally, the research conclusions can provide empirical evidence for educational administration departments to formulate policies for information-based teaching reform in secondary vocational education, such as optimizing teaching resource allocation, improving teacher training systems,

constructing diversified teaching evaluation systems, and driving high-quality and substantive development in secondary vocational education.

1.6 Definition of Key Terms

Classroom Questioning: During the teaching process, classroom questioning refers to the behavioral process where teachers or students proactively raise questions related to the teaching content, stimulating thinking and promoting interaction. It encompasses guiding questions designed by teachers to address key or difficult knowledge points and doubts raised by students based on their understanding or confusion.

Group Discussions: In classroom or extracurricular learning scenarios, group discussions involve teachers dividing students into several groups to engage in collaborative communication activities centered around specific themes or tasks. Emphasizing the sharing of viewpoints, clashing of opinions, and joint problem-solving among group members, group discussions aim to enhance critical thinking and communication/collaboration skills through cooperative learning, while also promoting an in-depth understanding of knowledge.

Pre-class Preparation: Pre-class preparation refers to the learning behavior where students autonomously preview and contemplate the knowledge content to be covered in the upcoming class before formal classroom learning begins. Previewing typically includes reading textbooks, consulting materials, and attempting to solve basic problems. Its core objective is to reduce cognitive load during class through pre-learning, thereby improving learning efficiency and cultivating autonomous learning abilities.

Note-taking During Class: Note-taking during class refers to the learning behavior where students record key points, critical information, and personal reflections from teachers' lectures through text, charts, symbols, or other forms. Note-taking is not merely about organizing and summarizing knowledge points but also serves as a visual manifestation of students' active engagement in the classroom and understanding of the material, facilitating post-class review and knowledge consolidation.

Learning Interest: Learning interest refers to the intrinsic motivation and positive emotional inclination that students develop towards specific subjects, themes, or learning activities. Learning interest typically manifests as attention to learning content, a desire for exploration, and proactive engagement. It is the core driving force behind the sustained occurrence of learning behaviors and the enhancement of learning outcomes, influenced by factors such as teaching content, teaching methods, and personal experiences.

Classroom Participation: Classroom participation refers to the degree of active engagement that students demonstrate in classroom activities through behavioral expressions and cognitive input. Classroom participation encompasses three dimensions: behavioral participation, cognitive participation, and emotional participation, serving as a key indicator for assessing teaching quality and learning effectiveness.

Chapter 2 Literature Review

2.1 Introduction

This chapter reviews the literature related to classroom participation in the context of smartwatch-integrated learning environments and provide a theoretical foundation for the relationships of variables and research hypotheses in this study. The literature review covers key factors influencing classroom participation, including classroom questioning, group discussions, pre-class preparation, note-taking during class, and learning interest. By systematically reviewing existing literature, this chapter provides theoretical support for each variable in the research model. It also aids in identifying the relationships between these variables and serves as a basis for subsequent hypothesis testing.

2.2 Literature Review

2.2.1 Flipped Classroom

2.2.1.1 Connotation of Flipped Classrooms

Flipped classrooms represent a novel classroom model designed to enhance personalized and open interaction between students and teachers, enabling students to better understand their learning environment. Simultaneously, the role of teachers has transformed from being mere lecturers at the podium to instructors who combine direct instruction with constructivist approaches (Zhang, 2013). This methodology fundamentally alters traditional learning paradigms by fostering student-centered autonomous learning, allowing teachers more time to provide targeted individualized guidance (Kong et al., 2008). From these perspectives, it is evident that the "flipping" in flipped classrooms is not arbitrary but grounded in practical rationale. It aligns with the philosophy of new curriculum reforms, redefines teacher roles, and guides students toward autonomous learning, positioning them as the primary actors in the educational process.

Flipped classrooms emerge as a new teaching model within the context of advanced information technology development, where learning resources provided by teachers are no longer confined to traditional lesson planning but are primarily innovative resources such as instructional videos (Tang, 2013). Before class, students engage with learning materials, including instructional videos, and participate in practical exercises. During class, they engage in collaborative inquiry, knowledge clarification, and interactive exchanges with teachers.

As a novel teaching model, flipped classrooms redefines the roles of teachers and students in traditional classrooms. Students transition from passive learners to active protagonists in their education, while teachers assume a supportive role in facilitating student learning. Flipped classrooms also transform the teaching and learning processes in traditional settings. Students engage in autonomous learning through open online resources and teacher-created video courses, effectively relocating instructional components outside of classroom hours. Classroom time is primarily dedicated to teacher-assisted practice, clarification of doubts, and increased student participation in classroom activities (Wang & Zhao, 2013).

2.2.1.2 Characteristics of Flipped Classrooms

(1) Leveraging Advanced Information Technology as a Foundation

Flipped classrooms differ from traditional classrooms in that they require teachers to prepare course materials in advance and refine them before uploading them online. Students can then engage in learning with the support of cutting-edge information technology. Unlike traditional classrooms, students utilize high-quality online teaching resources during pre-class preparation to access novel content and facilitate knowledge transfer, while the classroom becomes an interactive space for teacher-student engagement (Guo & He, 2015). The widespread adoption of this approach is primarily attributed to the advancement of Internet technology and its extensive application in the educational sector, effectively mitigating the influence of objective factors on learners and transcending the constraints of traditional teaching methods on learning time and space. This enables learners to access high-quality learning materials at any time (Jin, 2001).

(2) Fostering Student-Centered Collaborative Inquiry

The Flipped Classroom model cultivates an active and proactive learning environment for students. By uploading course content and video resources onto the internet, students can customize their learning schedules and locations based on their availability, thereby creating a relaxed learning atmosphere. This eliminates concerns about missing out on teacher explanations due to illness, distractions, or participation in extracurricular activities. Furthermore, during video course consumption, students have the flexibility to replay segments and adjust their learning pace according to their comprehension levels (Han, 2012). Encountering difficulties during the learning process allows students to mark them for later discussion with teachers or peers in class. The objective of flipping the classroom is to provide students with ample time for in-depth discussions and collaborative interactions, enabling them to learn through cooperation and fulfill classroom assignments. Teachers can organize students into collaborative groups to foster cooperation and accomplish learning tasks, thereby nurturing a spirit of mutual assistance and collaboration (Qin, 2013).

(3) Enhancing Teacher-Student Interaction

In traditional classroom settings, teachers deliver uniform instruction, limiting learners' ability to select content and methods aligned with their learning habits and interests. This often results in diminished motivation and sub optimal learning outcomes (Qi, 2015). Within the flipped classroom model, students enjoy greater autonomy in selecting learning content through online instructional videos before class. With adequate pre-class preparation, both teachers and students have more time for interactive exchanges or group discussions during class. Teachers can then provide tailored guidance based on classroom discussions and interactions (Song & Yu, 2014). The Flipped Classroom approach redefines the roles of teachers and learners, positioning students as the primary actors in their education and teachers as facilitators of learning.

(4) Integration and Comprehensiveness of Teaching Resources

The teaching resources in flipped classrooms differ significantly from those in traditional classrooms. By integrating scattered teaching resources through information technology and video production methods, flipped classrooms presents teaching materials via videos, images, audio, and graphics, rather than being confined to simple numbers and text. This effectively breaks the monotony of teaching resources in traditional classrooms (Gao & Zhou, 2015), highlighting the advantages of resource integration in flipped classrooms. Additionally, flipped classrooms exhibit comprehensive characteristics such as optimizing resource quality and expanding resource quantity, providing teaching subjects with broader spaces and richer resources.

(5) Uniqueness and Effectiveness of Teaching Media

Teaching media refers to the carriers used to store and convey teaching information during interactive teaching activities, as well as the combined forms and manifestations of teaching content compiled by teachers to achieve specific teaching objectives. Flipped classrooms transcend the limitations of traditional classrooms, which primarily rely on language, text, and textbooks, by utilizing micro-lessons and information technology as their main teaching media, showcasing innovative characteristics in teaching media. Moreover, efficiency is another hallmark of teaching media in flipped classrooms. Supported by information technology, flipped classrooms employs micro-videos to overcome temporal and spatial constraints in teaching, enhancing teaching efficiency while enabling the recycling of teaching resources. Additionally, flipped classrooms also exhibit a three-dimensional characteristic in their teaching media (Zhao, 2014). Through micro-videos, knowledge dissemination occurs, accompanied by real-time feedback, facilitating teacher-student interaction and promoting mutual development, thereby creating conditions for inquiry-based learning.

(6) Flexibility and Controllability of the Teaching Process

The teaching process refers to the initiation, discovery, and evolution of teaching activities, comprising both "teaching" and "learning" aspects. Flipped classrooms fully embody the autonomy characteristic in the teaching process, allowing students to make autonomous choices, engage in self-directed learning, conduct self-evaluations, and exercise self-monitoring based on their learning progress, comprehension levels, existing knowledge, and learning videos. Flipped classrooms can adapt to various changes in the teaching process, demonstrating flexibility in the timing of "teaching" and "learning." Throughout the entire teaching process or specific teaching stages, flipped classrooms also exhibit controllability, enabling teaching subjects to manage teaching content and progress. This controllability fosters the development of all teaching participants and facilitates the smooth conduct of teaching activities.

2.2.1.3 Research Status of Flipped Classrooms

The flipped classrooms teaching model can be traced back to Nathaniel Burgess and Aaron Sams, two chemistry teachers at Woodland Park High School in Colorado. Initially, they recorded teaching videos and uploaded them online for students to download and learn from, aiming to address the challenges faced by students who lived too far from school or were hindered by illness from attending classes. Gradually, this evolved into a model where students watched videos and listened to explanations at home, while teachers assisted students in overcoming difficulties encountered during experiments and clarified doubts arising from homework completion in class, thereby inverting and flipping the traditional teaching model. Their efforts earned them the Presidential Award for Excellence in Mathematics and Science Teaching (Bishop & Verleger, 2013).

Scholars at the University of Miami, including Glen Platt and Maureen Lage, also conducted effective Flipped classroom teaching practices in their introductory economics courses. Teachers utilized course management systems and online tools to assign homework and facilitate collaborative and active learning activities among students in class (Mok, 2014). The implementation of flipped classrooms in China started relatively late and has not been widely adopted in educational practice due to high implementation requirements. However, with the rapid spread of educational informatization, the promotion and application of flipped classrooms have accelerated. Miao and Wang (2015) surveyed 165 Chinese teachers who had been practicing flipped classrooms for over six months, focusing on their basic characteristics, implementation behaviors, and self-assessments of effectiveness. The results indicated that flipped classrooms are currently in the initial stages of development. An increasing number of teachers are placing greater emphasis on meeting students' personalized needs and cultivating their autonomous learning abilities, which has become a significant motivation for teachers to improve their teaching methods. Teachers generally recognize that the flipped classrooms teaching model effectively stimulates students' learning motivation and enhances their learning experiences (Han,2015). This survey

analysis summarizes the achievements, problems, and challenges encountered in the current implementation of flipped classrooms in Chinese universities.

Based on previous research, the focus of flipped classrooms studies primarily centers on two major areas: First, the connotations, theories, historical origins, development processes, current status, and significance of flipped classrooms. Second, studies are conducted from perspectives such as teaching models, teaching subjects, and teaching processes. The emergence of flipped classrooms provides a novel teaching model for traditional Chinese classrooms, offering students more opportunities for classroom interaction and active learning. Flipped classrooms align with the concepts of technology acceptance theory and situated learning. A key advantage of flipped classrooms is that they enable learners to engage in autonomous learning before class, preparing them for knowledge internalization during class. The flipped classrooms model significantly increases interaction time between students and teachers, as well as among students, thereby enhancing classroom participation. Teachers should focus on actively monitoring and observing each learner's participation status in class and providing timely and effective guidance to facilitate their knowledge construction and provide effective assistance for further knowledge internalization (Zhu et al., 2015).

2.2.2 Situated Learning Theory

Situated Learning Theory is a learning theory proposed by renowned American professors Etienne Wenger and Jean Lave. This theory emphasizes the significance of a series of situated activities in the learning process for students to acquire and master knowledge, highlighting the inevitable relationship between cognitive situations and learning. Following the proposition of Situated Learning Theory, numerous experts and scholars have endeavored to research the integration of school education with situated learning (Yang & Zhou, 2018).

Situated Learning Theory focuses on simulating or creating authentic environments for students to ensure the effectiveness of learning, achieving genuine integration of knowledge and practice through the combination of knowledge and situations. Two key ideas in Situated Learning Theory are as follows: Firstly, the content of learning should possess uniqueness. Situated Learning Theory posits that knowledge is a constituent part of situations, representing a socially situated, authentic, and dynamic reality. Secondly, regarding the essence of learning, it is not merely about simple comprehension and memorization of text in books. Rather, its fundamental purpose is to integrate students' subjective consciousness with the given learning environment they are in, enabling them to actively participate in practical activities within authentic environments based on their subjective initiative and to solve problems through such participation. The application of knowledge occurs within certain contexts; therefore, students' knowledge learning should be a process of understanding, constructing, and transferring knowledge in conjunction with specific situations. The

formation and application of knowledge are also complex, and this complexity is often closely associated with particular environments. Situated Learning Theory emphasizes creating learning situations and having students participate in specific environments while being able to flexibly apply knowledge as the focal points of concern.

2.2.3 Technology Acceptance Theory

In recent years, the rapid development of information science and technology has also contributed to the enhancement of our daily lives and learning efficiency. However, the improvement of work efficiency often depends on people's willingness to accept and utilize the technology (Hu et al., 2015). The research domains of Technology Acceptance Theory mainly encompass the Technology Acceptance Model (TAM) and Theory of Reasoned Action (TRA), as illustrated in Figures 2.1 and 2.2.

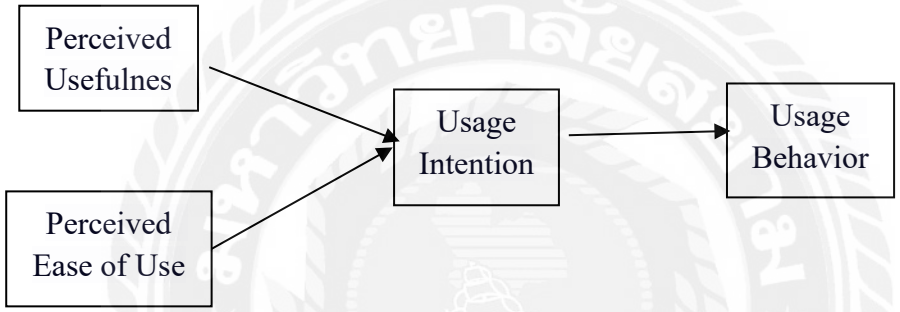

Figure 2.1: Technology Acceptance Model (TAM)

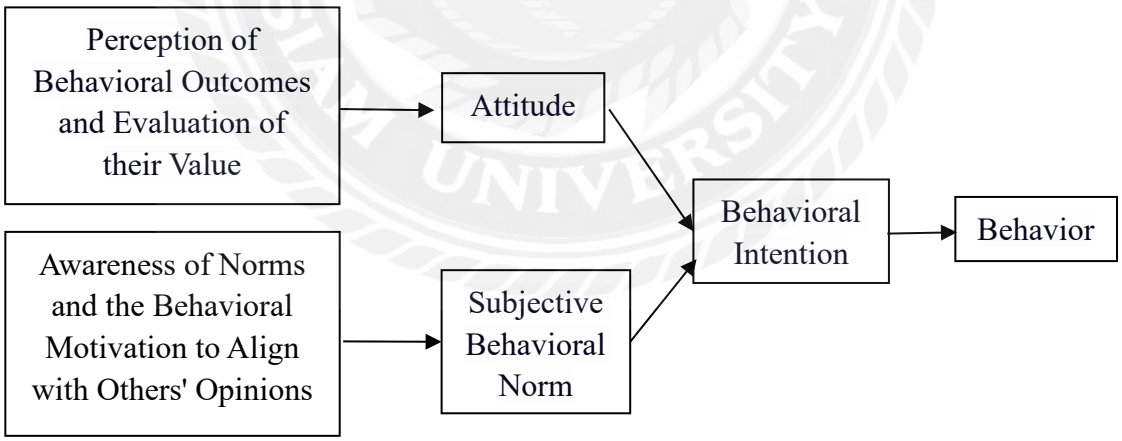

Figure 2.2: Theory of Reasoned Action (TRA) Model

In 1989, Technology Acceptance Model (TAM) was proposed by American Professor Fred Davis based on Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB). The TAM is primarily used to analyze and predict individuals' adoption behaviors toward information technology (Zhuang, 2014). This model posits that factors related to scientific information technology influence individuals' perceptions, which in turn affect their attitudes toward usage. These attitudes

subsequently influence behavioral intentions, ultimately leading to changes in behavioral performance (Su, 2014). The TRA asserts that individuals' behaviors can be reasonably inferred from their behavioral intentions, which are determined by subjective norms and attitudes toward the behavior (Ding et al., 2013). Subjective norms refer to the pressures and influences exerted by surrounding groups on an individual's behavior, prompting them to conform to the expectations of others or groups regarding their actions. Therefore, subjective norms are jointly determined by normative beliefs and motivation to comply (Xu et al., 2013).

The reasons for constructing an influencing factors model of classroom participation based on the TAM in this study are as follows: Most existing research on classroom participation by scholars has utilized models from the technology acceptance domain for conceptualization. Flipped classrooms encompass two major information education methods: online classroom participation and offline classroom participation. In the TAM, perceived ease of use influences users' behavioral intentions through perceived usefulness. Scholars have suggested that when selecting the TAM as a research model, it is appropriate to incorporate additional relevant factors based on the specific research content to enhance and enrich the research findings. Therefore, after an in-depth analysis of previous literature, this study has integrated corresponding variables based on the characteristics of flipped classrooms to further improve the model's predictive and explanatory capabilities.

In flipped classroom teaching activities, classroom questioning by teachers is not merely the posing of isolated questions but generally involves a sequence of interconnected and progressively advancing questions. In other words, the questions in classroom questioning are mutually supportive and interactive. When posing questions, teachers must consider not only the quality of the questions but also the order in which they are presented and how they are organized and expressed. For example, whether the gradient formed between two questions is appropriate; whether the distribution and quality of questions within the teaching content align with the teaching focus; whether the questions follow a gradual progression to achieve teaching objectives; whether the sequencing of questions interferes with contingencies occurring in flipped classrooms; and whether the design of a series of questions sparks students' learning interest and facilitates natural transitions. All these aspects are crucial for participation in flipped classrooms and have therefore led to the inclusion of "classroom questioning" in the research model (Yun, 2006).

2.2.5 Group Discussions

Group discussions are a learning method in flipped classrooms and an effective and innovative teaching strategy implemented in many countries today. College students already possess certain social skills and communication abilities, and some knowledge characteristics in higher education are suitable for divergent thinking and

group discussions. Many Chinese experts and scholars believe that this learning method aligns well with the teaching format of flipped classrooms in China, serving as a bridging role in teaching organization while also providing a buffer for pre-class preparation and in-class learning. This learning method makes classroom teaching more vivid and contextualized, allowing students to experience and share learning experiences through face-to-face interactions, thereby promoting the internalization of knowledge (Ma,2017). Additionally, it facilitates knowledge externalization behaviors such as discussion, question-posing, rebuttal, and knowledge supplementation among students, as well as elaborate processing of knowledge. Such deep-level knowledge construction is difficult to achieve in traditional classrooms, leading to the inclusion of "group discussions" in the research model.

2.2.6 Pre-class Preparation

In the context of flipped classrooms, pre-class preparation plays a crucial role in the overall learning process. Typically, pre-class preparation refers to the proactive efforts of both teachers and students: teachers meticulously prepare teaching content, while students actively engage in previewing and preparing for the upcoming lessons. This practice is instrumental in cultivating students' habit of pre-class preparation and emphasizing their central role in the learning process. With the continuous advancement of curriculum reform, classroom expectations for students have escalated. Pre-class preparation, as a self-directed learning endeavor, encourages students to participate in classroom instruction, engage in inquiry-based learning, and autonomously explore learning materials before class, thereby positioning students as the focal point of teaching. The pre-class preparation process in flipped classrooms involves students comprehensively utilizing their oral, manual, and cognitive abilities. Through thorough reading, information gathering, and identification of key points and difficulties before class, students gain preliminary insights into the upcoming content (Huang & Zhou, 2016). This preliminary self-study enables students to resolve some straightforward issues within the course, fostering a foundational understanding of the material. Consequently, cultivating students' pre-class preparation capabilities is highly beneficial. Therefore, "pre-class preparation" is incorporated into the research model.

2.2.7 Note-Taking During Class

Marketing courses are relatively complex, encompassing a vast array of content and numerous knowledge points. Consequently, note-taking during class is of paramount importance in facilitating learning. It serves as a fundamental foundation for reducing forgetfulness and achieving learning objectives. To facilitate post-class review, recapitulation, and memorization, students can utilize note-taking to organize and

clarify intricate knowledge points. The process of extracting and summarizing the teacher's explanations, followed by internalization through note-taking, constitutes a profound cognitive processing activity. This process of summarizing and deeply processing knowledge effectively enhances students' thinking abilities. Hence, "note-taking during class" is integrated into the research model (Li, 2016).

2.2.8 Learning Interest

The rapid advancement of computer technology has ushered in an era of "Internet+," bringing forth a plethora of online learning platforms and posing new demands for educational reform. Flipped classrooms have heightened students' interest in learning, enriched teaching content, and transformed teaching methodologies and approaches. Currently, university curricula are increasingly oriented towards competence, interaction, and practical application to meet societal development needs. Consequently, there is an urgent need to transition from traditional classroom teaching formats to align with the demands of the times, society, and enterprises. Students exhibit significant enthusiasm for the flipped classrooms teaching model, prompting us to explore strategies to enhance their learning interest (Hu et al., 2015). This can be achieved by fostering a positive learning atmosphere in the classroom, expanding learning platforms, providing diverse online learning resources, and improving the timeliness, scientific rigor, and effectiveness of student assignment management. From the perspective of students' learning interest, classroom participation in flipped classrooms should leverage the influential effect of highly motivated students to inspire all participants, thereby cultivating a pleasant learning environment that boosts students' enthusiasm and engagement. Consequently, "learning interest" is integrated into the research model.

2.2.9 Classroom Participation

2.2.9.1 Connotation of Classroom Participation

"Classroom participation" refers to the extent to which students actively and proactively engage in the teaching and learning process. It can be specifically categorized into overall student participation and individual student participation. Metrics such as the number of participating students, their attitudes, methods, depth, and effectiveness of participation are all indicators used to evaluate classroom teaching quality (Li & Bai, 2011).. Since the 1990s, the educational community has begun to focus on students as the central subjects of learning, resulting in significant improvements in students' knowledge levels and transformations in their learning approaches. Concurrently, many researchers have started to emphasize the role of classroom participation. Classroom participation can be defined as the number or proportion of students who can autonomously and innovatively achieve multiple

teaching objectives in the classroom, while also making notable progress in enhancing their learning abilities and acquiring knowledge (Sun, 2011). It encompasses three dimensions: behavioral participation, cognitive participation, and emotional participation. Another group of scholars considers classroom participation as the degree of initiative and enthusiasm students exhibit in participating in the teaching process, using the time spent participating and the number of students who actively contribute during class as indicators of participation levels.

2.2.9.2 Related Research on Classroom Participation

In larger classes, students who are less adept at communicating with peers tend to receive less attention, whereas in smaller classes, students generally exhibit higher levels of classroom participation (Fredricks et al., 2004). Browa (2014) found that classroom participation can be effectively enhanced by recording students' behavioral expressions during class, fostering self-monitoring among students, and assisting teachers in facilitating active reflection on individual behaviors.

Fredricks et al. (2004) surveyed 500 senior students in the North Ibadan region of Oyo State to explore their learning habits and measure their English classroom participation, proposing the impact of learning habits and student participation on academic performance. Hone and Said (2016) investigated the relationship between student participation and teacher-student relationships, arguing that students are not merely passive recipients of information but active learners. Teaching aims to create spaces for student participation, and a diverse learning community should be established during the teaching process. Ryan analyzed data from 142 universities to investigate the relationship between classroom participation and school financial expenditures.

Kong (2003), through a comprehensive review and synthesis of previous research, categorized classroom participation into three dimensions: behavioral, emotional, and cognitive participation, providing conceptual definitions for each dimension and discussing the roles of different participation forms. Guo and Jin (2013) believed that full participation is manifested in two main aspects: firstly, students' participation states in class, where the quality of students' emotional experiences is directly influenced by classroom participation rates, and secondly, the success of a lesson is often marked by classroom participation rates. Additionally, students' participation behaviors are also crucial. Zhang (2015) proposed strategies to enhance classroom participation after observing student participation levels in the flipped classroom model.

2.2.10 Research Status of Classroom Participation in Flipped Classrooms

Extensive literature analysis reveals that research on classroom participation

primarily focuses on factors influencing participation, strategies for enhancing participation, current participation status, and measurement and evaluation of participation, spanning both basic and higher education. However, studies on the degree of participation in flipped classrooms under various new teaching models remain relatively scarce in higher education. Given that flipped classrooms emphasizes student-centered learning and active collaboration among learners, with a pre-class video self-study component and small-class teaching facilitating increased group discussions and teacher-student interactions, this study focuses on investigating and analyzing influencing factors related to pre-class preparation and group discussions within the flipped classroom environment.

In basic education research, experts and scholars aim to identify issues in student participation during teaching activities and provide solutions and strategies to effectively improve teachers' instruction, enhance classroom participation, and boost teaching effectiveness. These experts integrate student classroom participation with specific subjects. Professor Kong Qiping was among the earliest to engage in research on student classroom participation, using classroom observations and questionnaires to explore the relationship between student participation and learning outcomes in mathematics classes (Kong 2003). The findings indicate that positive emotional experiences, relatively simple behavioral engagement, and deeper cognitive engagement effectively promote students' mathematical thinking and overall quality development. Compared to basic education, students in higher education currently exhibit a more autonomous learning state, with a deeper desire and pursuit of knowledge, requiring more opportunities for self-expression. Meanwhile, the integration of cutting-edge technologies into the teaching field has diversified teaching methods, shifting research on classroom participation from traditional classrooms to network-based ones. Yang and Zhou (2018) studied the relationship between flipped classrooms and classroom participation, suggesting that flipped classrooms significantly enhance verbal participation in the classroom, with 89% of students willing to continue with flipped instruction.

2.2.11 Summary of Literature Review

Based on the above literature review, we observe that traditional classrooms and flipped classrooms represent two distinct teaching models. The primary structure of flipped classrooms is reversed compared to traditional classrooms. Flipped classrooms emphasizes providing students with learning guides and centering on learners during pre-class autonomous learning, transforming passive participation into active learning. In contrast, traditional classrooms adopt a didactic teaching approach, assigning exercises for knowledge consolidation after lectures, resulting in a relatively dull classroom atmosphere. Flipped classrooms also reverse the roles of learners and teachers, strengthening teacher-learner interactions and increasing learners' classroom participation.

A review of extensive literature indicates that many researchers on classroom participation have not truly entered classrooms for investigation and observation, instead relying on theoretical arguments to present their viewpoints. This approach fails to effectively provide educators with actionable insights for improving teaching and has low feasibility, as it is somewhat disconnected from teaching content. Research on strategies to improve and enhance classroom participation in specific knowledge content teaching is relatively scarce.

2.3 Introduction to Hubei Province First Secondary Vocational School

Hubei Province First Secondary Vocational School is a public key secondary vocational school in Hubei Province, committed to cultivating high-quality skilled talents and providing professional technical support for regional economic development. Boasting a favorable geographical location, the school has been honored with titles such as "Provincial Demonstration Secondary Vocational School" or "National Key Secondary Vocational School," and wields significant influence in the field of vocational education within the province. The school's curriculum is closely aligned with market demands, encompassing practical majors such as marketing, electronically technology application, and e-commerce, ensuring that students acquire skills that are in line with current employment trends. In terms of educational characteristics, the school adheres to the integration of industry and education, establishing partnerships with numerous well-known enterprises to provide students with integrated internship and employment pathways. It also emphasizes both further education and employment, facilitating students' entrance into higher education institutions through avenues such as skill-based college entrance examinations and single-subject enrollment examinations for higher vocational colleges. The school actively organizes students to participate in various skill competitions, achieving remarkable results in provincial and national-level events, which underscores its solid teaching capabilities. The school is equipped with advanced teaching facilities, including multiple modern professional training bases, ensuring that students have ample opportunities for practical operation. The faculty team is experienced, with a high proportion of dual-qualified teachers who can both impart theoretical knowledge and guide students in mastering practical skills.

2.4 Conceptual Framework

Based on Situational Learning Theory and Technology Acceptance Model, and after analyzing relevant research findings, this study proposes an influencing factor model for student classroom participation in the context of flipped classrooms. This

model categorizes the influencing factors of flipped classroom participation into five dimensions: classroom questioning, group discussions, pre-class preparation, note-taking during class, learning interest, and learning interest. The model is illustrated in Figure 2.3.

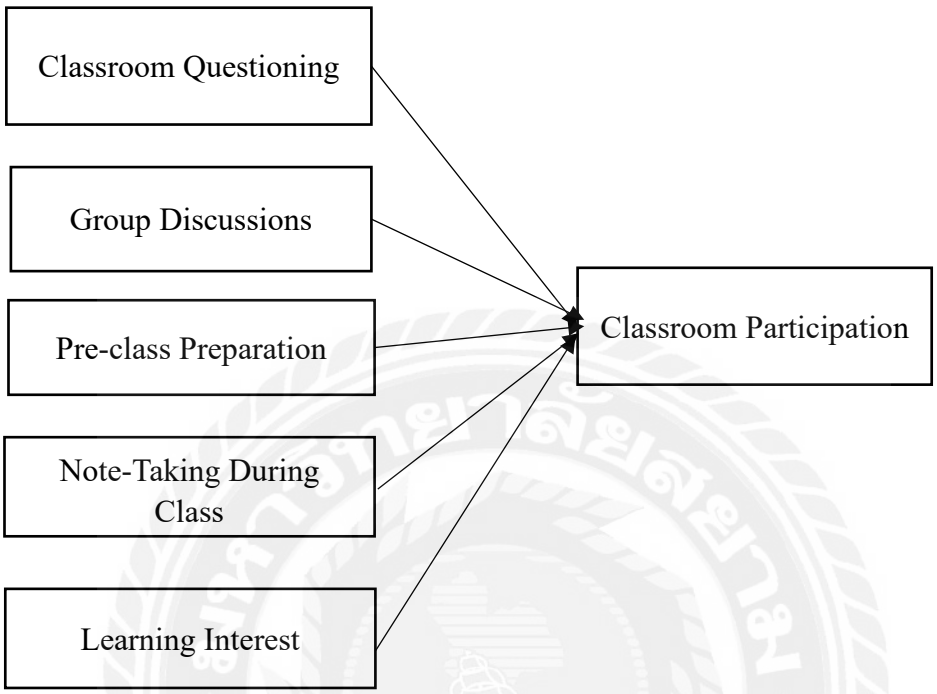

Figure 2.3 Conceptual Framework

Chapter 3 Research Methodology

3.1 Research Design

This study employed a quantitative research methodology to investigate the factors influencing student participation in flipped classrooms within the Marketing major at Hubei Province First Secondary Vocational School. Rooted in a questionnaire survey approach, the research focused on examining the relationships between classroom questioning, group discussions, pre-class preparation, note-taking during class, learning interest, and classroom participation. Data collection utilized a structured questionnaire based on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree), and statistical analysis was conducted using SPSS software. This included descriptive statistics (mean, standard deviation) to present data distribution characteristics, correlation analysis to explore associations between variables, and multiple regression analysis to reveal the predictive power of each independent variable on participation. This systematic data validation design is capable of objectively unveiling the mechanisms through which different teaching strategies impact student participation behaviors in flipped classrooms.

3.2 Population and Sample

The population of this study centered on all the currently enrolled students in the Marketing program at Hubei No.1 Secondary Vocational School, totaling 351 individuals in 2025. To comprehensively and in-depthly explore the factors influencing these students' participation in flipped classrooms, this study employed a census sampling approach, selecting all 351 students from the Marketing program as the target sample. During the sample selection process, due consideration was given to key demographic variables, encompassing multiple dimensions such as gender, grade, student leadership status, and family monthly income level. This ensured that the sample could adequately reflect the diversity of students within the Marketing program. To guarantee the representativeness of the sample and the comprehensiveness of the collected data, the research team adopted a comprehensive survey method. Through meticulously designed questionnaires and a scientific data collection process, the team strived to obtain accurate, reliable, and representative research data, thereby laying a solid foundation for subsequent in-depth analysis of the factors influencing students' participation in flipped classrooms.

3.3 Hypothesis

This study aims to verify, through factor analysis, the specific impacts of classroom questioning, group discussions, pre-class preparation, note-taking during class, and learning interest on flipped classroom participation of marketing students at

Hubei Province First Secondary Vocational School, thereby providing theoretical support and practical guidance for enhancing classroom participation. Therefore, the following hypotheses are proposed in this study:

H1: Classroom questioning has a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.

H2: Group discussions have a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.

H3: Pre-class preparation has a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.

H4: Note-taking during class has a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.

H5: Learning interest has a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.

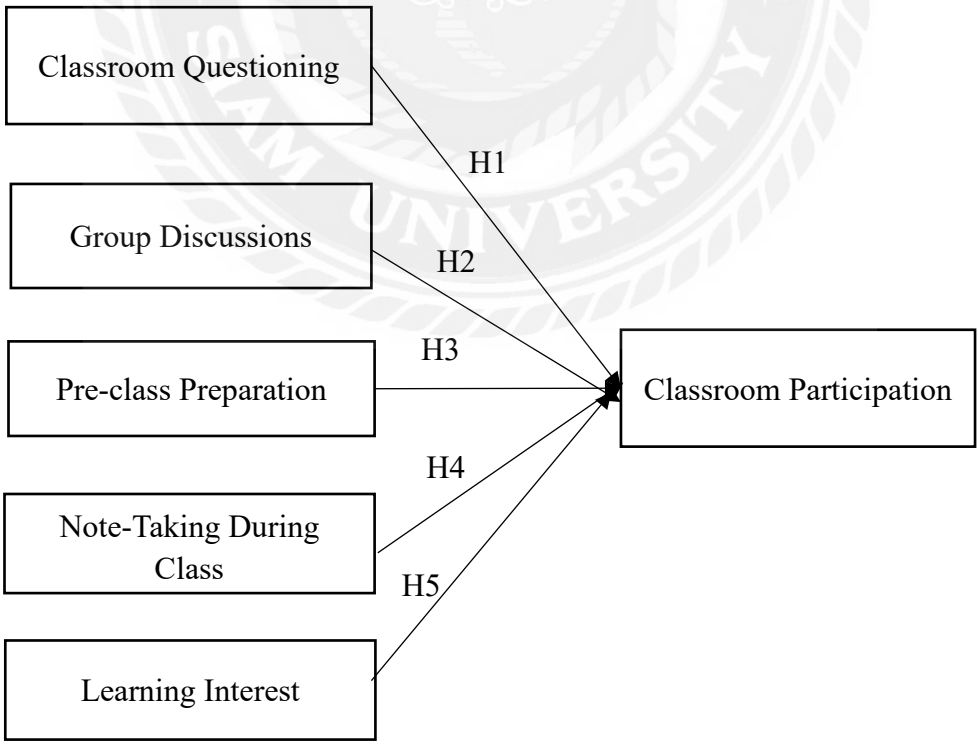

Figure 3.1 Hypotheses

3.4 Research Instrument

The framework for the questionnaire design is primarily based on Situated Learning Theory and Technology Acceptance Theory.

The design of the "classroom questioning" section draws reference from Yang and Zhou (2015) "Research on Strategies for Effective Questioning in Middle School Chinese Classroom Teaching." This questionnaire aims to measure students' perspectives on classroom questioning in teaching, focusing on factors such as the content, frequency, difficulty, and types of questions. In this study, this questionnaire is adapted to assess the content of teacher questioning in flipped classrooms. The "group discussions" questionnaire design references Huang and Zhou (2016) "Investigation on the Current State of Group Discussion Topics in Junior High School Geography Classroom Teaching," with questions tailored to the characteristics of flipped classrooms. The "pre-class preparation" section mainly draws from the pre-class self-study component in "Research on Teaching Evaluation in Pre-Class Self-Study of Junior High School Flipped Classrooms," primarily measuring the impact of pre-class self-study on classroom participation. The relevant dimensions of "note-taking during class" and "classroom participation" mainly reference the main content of Su's (2014) "Research on the Current State of Note-Taking Strategies During Class Among College Students."

The questionnaire consists of 23 items, which can be divided into two main sections:

The first section contains 3 questions, primarily targeting the personal basic information of the respondents, including gender, grade, student leadership status, and family monthly income level.

The second section contains 20 items, focusing on the influencing factors of flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School. It includes items related to classroom questioning, group discussions, pre-class preparation, note-taking during class, learning interest, and classroom participation. The measurement items are presented in Table 3.1.

Table 3.1 Measurement Items

Influencing factor	Measurement Item	No.
Classroom Questioning	When your teacher asks questions, the method most frequently used is "teacher asks, students answer."	1
	When the teacher poses a question, how often do you answer correctly?	2
	In flipped classrooms, when a classmate raises a question or presents a different viewpoint to the teacher, the teacher	3

	encourages everyone to ask questions and engage in appropriate discussions.	
Group Discussions	In group discussions during flipped classrooms, you actively participate in speaking.	4
	In group discussions during flipped classrooms, you listen attentively to the contributions of other group members.	5
	In group discussions during flipped classrooms, the student who speaks the most within your group is usually the one with better academic performance.	6
Pre-class Preparation	The amount of knowledge to be learned in pre-class self-study is appropriate.	7
	The difficulty level of pre-class self-study is appropriate.	8
	You have a good grasp of the material learned in pre-class self-study.	9
Note-taking During Class	It is necessary to take notes during Flipped Classroom learning.	10
	You often take notes during Flipped Classroom learning.	11
	Taking notes and understanding them in flipped classrooms helps you engage more fully in classroom learning.	12
Learning Interest	I am interested in every section of the textbook.	13
	When the teacher poses a question, I often think actively.	14
	Even without supervision, I can take the initiative to participate in learning.	15
Classroom Participation	In flipped classrooms, I take the initiative to answer the questions posed by the teacher.	16
	During group discussions, I frequently express my viewpoints and ideas.	17
	I diligently completed the pre-class preparation tasks assigned by my teacher.	18
	During the class, I can maintain my concentration throughout.	19
	After class, I take the initiative to consult relevant materials to deepen my understanding of the classroom content.	20

3.5 Reliability and Validity Analysis of the Scale

3.5.1 Questionnaire Reliability Analysis

Reliability analysis is a statistical process that reflects the degree to which the measured characteristics are consistent or stable based on the results of test scales. The more uniform the test results are, the stronger the data's representativeness of the whole, and the higher the reliability. Through reliability analysis, one can understand whether the questionnaire design is reasonable and make necessary revisions to avoid

classification errors. Cronbach's alpha evaluates the internal consistency of test items. The higher the Cronbach's alpha value, the higher the degree of consistency among the items. When the reliability coefficient of a subscale is greater than 0.7, the questionnaire's reliability is considered good; when it is between 0.6 and 0.7, it is also acceptable; and when the reliability coefficient of the total scale needs to reach above 0.8, it demonstrates good overall reliability.

Table 3.2 presents the reliability results of the pre-test conducted on the questionnaire in this study. Cronbach's Alpha was used as the internal consistency measurement index to assess the reliability of the measurement items in each dimension. Judging from Cronbach's Alpha coefficients, all variables involved in this study exhibit good reliability levels, indicating that the measurement tools possess high internal consistency.

Specifically, the reliability coefficients of the three variables, namely, classroom questioning (0.889), group discussions (0.892), and pre-class preparation (0.867), are all higher than 0.85, demonstrating excellent reliability. Although the coefficients of note-taking during class (0.857) and learning interest (0.812) are slightly lower, they still exceed the acceptable standard of 0.8, indicating stable and reliable measurement results. As the dependent variable, classroom participation (0.842) also reaches the ideal threshold of above 0.7, further validating the scientific nature of the research scale. These data collectively reflect that the questionnaire design is reasonable, and the measurement items for each variable can effectively capture the target constructs, laying a solid foundation for subsequent statistical analysis. In particular, the two teaching interaction dimensions of group discussions and classroom questioning exhibit the best reliability performance (close to 0.9), possibly suggesting that students have a high degree of consistency in their perceptions of teacher-student interaction and peer collaboration in flipped classrooms.

Table 3.2 Variable Reliability Test

Influencing Factor	Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Classroom Questioning	Q1	0.743	0.824	0.889
	Q2	0.741	0.854	
	Q3	0.721	0.865	
Group Discussions	Q4	0.774	0.866	0.892
	Q5	0.692	0.844	
	Q6	0.765	0.823	
Pre-class Preparation	Q7	0.762	0.887	0.867
	Q8	0.732	0.888	
	Q9	0.703	0.812	
Note-taking During Class	Q10	0.749	0.854	0.857
	Q11	0.758	0.837	

	Q12	0.774	0.824	
Learning Interest	Q13	0.751	0.861	0.812
	Q14	0.798	0.892	
	Q15	0.757	0.871	
Classroom Participation	Q16	0.778	0.887	0.842
	Q17	0.742	0.827	
	Q18	0.781	0.838	
	Q19	0.742	0.838	
	Q20	0.781	0.872	

3.5.2 Questionnaire Validity Analysis

Table 3.3 KMO and Bartlett's Test

KMO Measure of Sampling Adequacy		0.887
Bartlett's Test of Sphericity	Approximate Chi-Square	2542.6
	df	36
	P	$p<0.001$

Based on the results of the Kaiser-Meyer-Olkin (KMO) test and Bartlett's sphericity test, a decision was made to proceed with factor analysis. Factor analysis can only be conducted when the KMO value is greater than 0.7. Principal Component Analysis (PCA) was performed on the questionnaire to determine the common factor indicators and the cumulative total variance explained by each factor, which were used to assess the questionnaire's discriminant validity and convergent validity. Bartlett's sphericity test indicates that a KMO value above 0.9 is highly suitable for factor analysis, between 0.8 and 0.9 is suitable, between 0.7 and 0.8 is adequate, between 0.6 and 0.7 is not suitable, and below 0.5 is not suitable. As shown in Table 3.3, the KMO value of the scale is 0.887, which is greater than 0.7. The approximate chi-square value is 2542.6, with $P < 0.001$, indicating that the scale is suitable for factor analysis.

Factors with eigenvalues greater than 1 were extracted, and these factors explained a cumulative total variance of 67.761%. We also considered the results of the rotated factor analysis using the varimax method. The calculations of the rotated component matrix demonstrated good discriminant validity among the factor items. Therefore, the validity of the questionnaire scale is acceptable.

3.6 Data Collection

This study selected students majoring in Marketing at Hubei Province First Secondary Vocational School as the research subjects, with data collection conducted

in April 2025. The questionnaires were distributed and collected mainly through Wenjuanxing (an online survey platform), with online recovery of the questionnaires. A total of 351 questionnaires were distributed. During the questionnaire recovery process, the research team conducted rigorous checks to eliminate invalid questionnaires, including those that were incomplete or had obvious inconsistencies. A total of 327 responses were recovered, resulting in a questionnaire recovery efficiency rate of 93.2%. Through this process, the research team obtained a large amount of valuable data, enabling an in-depth analysis of the factors influencing flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.

3.7 Data Analysis

3.7.1 Descriptive Statistics

The software used for descriptive statistics included Excel and SPSS, which were employed to conduct statistical analysis on the demographic characteristics of the sample, including mean, standard deviation, percentage, normal distribution, kurtosis value, and skewness value. Descriptive statistics provided fundamental support for further data analysis.

3.7.2 Factor Analysis

Exploratory factor analysis was conducted on the survey data using SPSS to extract common factors and determine the common dimensions of factors influencing classroom participation. The reliability and validity of the constructed model were confirmed, providing a theoretical basis for enhancing student classroom participation.

3.7.3 Multiple Regression

In this study, the multiple regression method served as a comprehensive and in-depth exploratory approach, significantly enriching the dimensions and accuracy of the research. By employing the multiple regression method, this study overcame the limitations of univariate model analysis, not only enriching the content and layers of the research but also enhancing its accuracy and practicality, thereby providing robust support and guidance for improving classroom participation.

Chapter 4 Findings and Discussion

4.1 Findings

4.1.1 Demographic Characteristics of Participants

This study conducted a demographic analysis based on survey data from 327 marketing students at Hubei Province First Secondary Vocational School. The results indicate that the sample exhibits good representativeness and balance, as shown in Table 4.1.

Table 4.1 Descriptive Statistical Analysis of Participants

Variable	Option	Number of People	Percentage
Gender	Male	168	51.4
	Female	159	48.6
Grade	First-Year Secondary Vocational School	121	37.0
	Second-Year Secondary Vocational School	108	33.0
	Third-Year Secondary Vocational School	98	30.0
Class Committee Position	Yes	58	17.7
	No	269	82.3
Family Monthly Income	Less than 5,000 yuan	49	15.0
	5,001-8,000 yuan	96	29.4
	8,001-10,000 yuan	107	32.7
	More than 10,000 yuan	75	22.9
Total		327	100.0

In terms of gender distribution, there are 168 male students (51.4%) and 159 female students (48.6%), with a gender ratio close to 1:1, effectively avoiding the influence of gender bias on the research findings. Regarding grade distribution, there are 121 first-year students (37.0%), 108 second-year students (33.0%), and 98 third-year students (30.0%). The sample sizes across the three grades are evenly distributed,

enabling a comprehensive reflection of the characteristics of students at different learning stages.

Among the student leaders, 58 (17.7%) are class committee members, while 269 (82.3%) are non-committee students. This proportion aligns with the actual situation in secondary vocational schools. A particularly noteworthy aspect is the distribution of family monthly income levels: low-income families (monthly income less than 5,000 yuan) account for 15.0% (49 students), middle-income families (5,001-8,000 yuan) account for 29.4% (96 students), upper-middle-income families (8,001-10,000 yuan) account for 32.7% (107 students), and high-income families (more than 10,000 yuan) account for 22.9% (75 students), presenting a relatively ideal normal distribution. Overall, the sample is reasonably distributed across key demographic variables, with a response rate of 93.2% for the 327 valid questionnaires (accounting for the proportion of the total population of 351), laying a reliable data foundation for the subsequent analysis of factors influencing flipped classroom participation.

4.1.2 Correlation Analysis

Table 4.2 Correlation between Variables

	Classroom Questioning	Group Discussions	Pre-class Preparation	Note-taking During Class	Learning Interest	Classroom Participation
Classroom Questioning	0.521					
Group Discussions	0.274	0.754				
Pre-class Preparation	0.280	0.239	0.783			
Note-taking During Class	0.520	0.152	0.251	0.784		
Learning Interest	0.541	0.204	0.241	0.774	0.572	
Classroom Participation	0.475	0.354	0.426	0.546	0.572	0.564

This study examined the relationships between various influencing factors in flipped classrooms and classroom participation through correlation analysis. The data results indicated significant correlations among the variables. Specifically, the correlation coefficient between classroom questioning and classroom participation was 0.475, suggesting that active question-and-answer interactions in the classroom can effectively enhance students' participation levels. The correlation between group discussions and classroom participation was 0.354, demonstrating that collaborative

learning plays a positive role in promoting participation. Notably, the correlation between pre-class preparation and classroom participation reached 0.426, highlighting the importance of the preview stage in the flipped classrooms model.

The data analysis also found that the correlation coefficient between note-taking during class and participation was 0.546, indicating that good note-taking habits can significantly increase learning engagement. A particularly notable variable is learning interest, with a correlation of 0.572 with participation, the strongest among all influencing factors, fully confirming the critical role of intrinsic motivation in learning participation. Additionally, the correlations among the predictor variables ranged from 0.2 to 0.5, with no high collinearity issues, making them suitable for further regression analysis. These data results provide a solid empirical foundation for constructing a model of factors influencing flipped classroom participation and offer important references for optimizing instructional design. Teachers should emphasize cultivating students' learning interests and enhancing the design of pre-class preparation and classroom interaction to improve the overall quality of students' participation in class.

4.1.3 Multiple Regression Analysis

Table 4.3 Multiple Regression Analysis

Item	Unstd. B	Std. Beta	*t*	Sig.	VIF	F
C	0.742		7.163	0.000		
Classroom Questioning	0.752	0.702	6.240	0.000	1.037	
Group Discussions	0.641	0.646	6.665	0.000	1.123	44.57***
Pre-class Preparation	0.632	0.647	6.687	0.000	1.341	
Note-taking During Class	0.671	0.657	6.663	0.000	1.123	
Learning Interest	0.654	0.651	6.641	0.000	1.157	
R Square	0.774					
Adjusted R Square	0.759					

NOTE：*P<0.05, **P<0.01, ***P<0.001

This study delved into the influence mechanisms of various variables on flipped classroom participation through multiple linear regression analysis, revealing that the model exhibited strong explanatory power. From the perspective of regression coefficients, the standardized regression coefficient of classroom questioning (β=0.702, t=6.240, P<0.001) stood out among the five predictor variables, indicating that question-and-answer interactions in the classroom contributed the most to enhancing participation. The regression coefficients of group discussions (β=0.646), pre-class

preparation (β=0.647), note-taking during class (β=0.657), and learning interest (β=0.651) all reached significant levels (P<0.001) with similar coefficient values, suggesting that these four factors had comparable promotional effects on participation. The overall goodness-of-fit indicators of the model showed an R^2 value of 0.774 and an adjusted R^2 of 0.759, implying that the five independent variables jointly explained 75.9% of the variance in classroom participation, indicating excellent model explanatory power. The analysis of variance results (F=44.57, P<0.001) confirmed the statistical significance of the regression model. The variance inflation factors (VIF) for each variable ranged from 1.037 to 1.341, well below the critical value of 5, indicating that the model did not suffer from multicollinearity issues. These findings provide clear guidance for teaching practice: teachers should prioritize optimizing the design of classroom questioning while simultaneously fostering students' preview habits, collaborative abilities, note-taking methods, and learning interest to enhance participation in flipped classrooms.

Therefore, based on the data analysis results: Classroom questioning has a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School, supporting Hypothesis 1; Group discussions have a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School, supporting Hypothesis 2; Pre-class preparation has a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School, supporting Hypothesis 3; Note-taking during class has a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School, supporting Hypothesis 4; and learning interest has a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School, supporting Hypothesis 5.

4.2 Discussion

4.2.1 Classroom Questioning has a Significant Impact on Flipped Classroom Participation of Marketing Students at Hubei Province First Secondary Vocational School

This study, through empirical analysis, found that classroom questioning plays a crucial role in the implementation of flipped classrooms in the Marketing major at Hubei Province First Secondary Vocational School, exerting a significant positive influence on students' classroom participation. Specifically, the questioning strategies designed by teachers (such as question types, difficulty gradients, follow-up inquiry techniques, etc.) are directly linked to students' willingness to respond, depth of thinking, and classroom engagement. The study found that open-ended questions (such as case analysis, and strategy discussions) are more effective in stimulating students'

participation enthusiasm compared to closed-ended questions (such as factual Q&A), and higher-order thinking tasks significantly enhance students' breadth and depth of thinking. Additionally, differentiated questioning strategies effectively reduce anxiety among students with low participation levels while enhancing the sense of achievement among students with high participation levels.

Practice indicates that optimizing classroom questioning design should integrate the subject characteristics of the Marketing major, increase the proportion of contextualized and inquiry-based questions, and reduce low-cognitive-level questioning. Teachers need to flexibly adjust question difficulty and guidance methods based on real-time classroom feedback, and enhance students' sustained motivation for participation through a closed-loop feedback mechanism of "student response-teacher evaluation-peer supplementation."

Overall, classroom questioning is not merely a tool for knowledge transmission but also a core fulcrum for constructing a "student-centered" learning ecosystem in flipped classrooms. Through scientific and systematic questioning strategy design, it can significantly enhance the quality of classroom participation among secondary vocational marketing students, providing practical references for the reform of vocational education teaching.

4.2.2 Group Discussions have a Significant Impact on Flipped Classroom Participation of Marketing Students at Hubei Province First Secondary Vocational School

In the practice of flipped classrooms in the Marketing major at Hubei Province First Secondary Vocational School, group discussions, as a core interactive format, have exerted profound and positive influences on students' classroom participation. In traditional classrooms, students often find themselves in a passive state of knowledge reception, whereas group discussions, through role distribution, task collaboration, and idea clashes, provide students with platforms for active thinking and expression.

The shift from passive knowledge reception to group discussions is reflected not only in the breadth but also in the depth of participation—students need to integrate diverse viewpoints and coordinate group decisions during discussions, thereby stimulating higher-level cognitive activities. The effectiveness of group discussions is closely related to the openness of tasks designed by teachers. For instance, when teachers assign open-ended questions such as "Designing an innovative product marketing plan for young consumers," students' participation enthusiasm is significantly higher than that in closed-ended tasks like "Reciting the basic concepts of marketing theory." Additionally, the time allocation for group discussions is crucial. Research indicates that group discussions lasting over 30 minutes enable students to engage in thorough thinking, avoiding superficial engagement due to insufficient time.

Meanwhile, through the "heterogeneous grouping" strategy (i.e., mixing students with different learning levels), teachers not only enhance the enthusiasm of students with low participation but also promote the deepening of knowledge among students with high participation through the "peer modeling effect."

When designing group discussions, teachers need to clarify task objectives, refine division-of-labor rules, and ensure the participation of every student through process-oriented evaluation. Furthermore, by integrating the characteristics of the Marketing major, teachers can introduce real-world corporate cases or simulated projects to make group discussions more practically targeted, thereby further enhancing the quality of student's classroom participation.

4.2.3 Pre-class Preparation has a Significant Impact on Flipped Classroom Participation of Marketing Students at Hubei Province First Secondary Vocational School

Pre-class preparation has been proven to be a crucial prerequisite for enhancing students' classroom participation in the implementation of flipped classrooms in the Marketing major at Hubei Province First Secondary Vocational School. Traditional classrooms often rely on one-way instruction from teachers, whereas flipped classrooms, through the "learn before teaching" model, precede knowledge transmission, creating conditions for in-depth classroom interaction.

Research shows that by issuing structured preview tasks (such as watching micro-lecture videos and completing basic concept tests), students' classroom preparedness significantly improves. Preparation not only helps students establish a knowledge base but also cultivates their autonomous learning abilities. The quality of the preview task design directly influences students' depth of participation. If preview content merely focuses on knowledge memorization (such as reciting definitions and formulas), students tend to be passive in class; however, when preview tasks incorporate "guiding questions" or "real-world application scenarios," students' participation enthusiasm significantly increases. For example, when teachers assign preview tasks like "Analyzing a brand's marketing strategy on social media," students demonstrate superior critical thinking performance in class compared to those who only complete knowledge-memorization-based preview tasks. Additionally, through real-time monitoring and feedback on preview progress via online platforms, teachers further strengthen students' motivation for preparation, shifting their focus from "passive completion" to "active exploration."

However, the implementation of preview tasks also faces challenges. Some students may struggle with poor self-discipline or time management skills, leading to ineffective preview outcomes. To address this, teachers need to design tiered preview tasks to meet the needs of students with different learning levels. Meanwhile, by

incorporating group preview reports and preview presentations of preview outcomes, teachers can enhance the interactivity and enjoyment of preview activities. Furthermore, teachers can leverage preview data (such as test scores and discussion board contributions) to accurately identify students' weaknesses, thereby conducting targeted personalized instruction in class to further enhance students' classroom participation.

4.2.4 Note-taking During Class has a Significant Impact on Flipped Classroom Participation of Marketing Students at Hubei Province First Secondary Vocational School

Note-taking during class has been proven to be a crucial bridge connecting knowledge input and output in flipped classrooms within the Marketing major at Hubei Province First Secondary Vocational School, exerting a significantly positive influence on student participation. In traditional classrooms, students often fall into the misconception of "mechanical recording," whereas flipped classrooms emphasize the promotion of in-depth thinking and knowledge internalization through note-taking. Research indicates that students who adopt the "structured note-taking method" demonstrate significantly superior information integration capabilities and logical coherence in viewpoints during classroom discussions compared to those who take free-form notes. This discrepancy underscores that notes are not merely recording tools but rather carriers of cognitive processing. The act of note-taking itself, such as actively highlighting keywords and drawing mind maps, can significantly prolong students' classroom focus duration and facilitate the establishment of connections between pre-class preparation content and classroom discussions.

Through classroom note-sharing sessions, teachers further reinforce the "learning tool" attribute of note-taking, transforming it from a mere recording behavior into a cognitive tool for deep engagement. It is worth noting that the introduction of digital note-taking tools (such as OneNote) has improved recording efficiency but requires strategic guidance from teachers to prevent students from falling into "information overload" or "superficial processing."

Teachers should conduct note-taking method training during the initial stages of the course, teaching students how to filter key information and establish knowledge frameworks. Simultaneously, they should encourage students to review classroom content through their notes. Additionally, teachers can incorporate note-taking into the process-based evaluation system by showcasing excellent notes and facilitating peer evaluations to stimulate students' motivation for note-taking, thereby further enhancing the quality of their classroom participation.

4.2.5 Learning Interest has a Significant Impact on Flipped Classroom Participation of Marketing Students at Hubei Province First Secondary Vocational School

Learning interest has been confirmed as a core intrinsic motivator driving deep student engagement in the implementation of flipped classrooms within the Marketing major at Hubei Province First Secondary Vocational School. In traditional classrooms, students often learn passively due to a lack of interest, whereas flipped classrooms stimulate students' intrinsic learning motivation through "task-driven" and "situational teaching" approaches. Research shows that students with high interest in marketing courses exhibit significantly superior classroom speaking quality, group contributions, and post-class extension learning behaviors compared to those with low interest. This outcome indicates that interest is not only the starting point of learning but also a guarantee for sustained engagement.

The cultivation of learning interest is closely related to the "real-task scenarios" designed by teachers. By introducing industry cases and inviting corporate guests to participate in classroom activities, teachers further broaden students' dimensions of learning interest, shifting them from "passive acceptance" to "active exploration."

However, the cultivation of interest is not a one-time effort. Some students may gradually lose their learning interest due to course difficulty, academic pressure, or personal preferences. To address this, teachers need to meet the diverse needs of students through differentiated instruction, such as designing "low-threshold, high-achievement" tasks for low-interest students and providing "challenging, innovative" projects for high-interest students. Additionally, teachers can foster a positive learning atmosphere by establishing learning communities and conducting interdisciplinary projects, making interest the intrinsic driving force for sustained participation. Furthermore, teachers should regularly assess changes in students' learning interests and adjust teaching strategies promptly to ensure that flipped classrooms remain appealing, thereby further enhancing student classroom participation.

Table 4.4 Hypothesis Test Results

NO.	Hypothesis	Result
H1	Classroom questioning has a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.	Supported
H2	Group discussions have a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.	Supported
H3	Pre-class preparation has a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.	Supported

H4	Note-taking during class has a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.	Supported
H5	Learning interest has a significant impact on flipped classroom participation of marketing students at Hubei Province First Secondary Vocational School.	Supported

Chapter 5 Conclusion and Recommendation

5.1 Conclusion

This study centered on the implementation effects of flipped classrooms in the Marketing major at Hubei Province First Secondary Vocational School. It focused on examining the influence of five key factors including classroom questioning, group discussions, pre-class preparation, note-taking during class, and learning interest on students' classroom participation.

Classroom questioning serves as an immediate feedback mechanism to promote deep student engagement. Through instant feedback and guiding thinking, classroom questioning constitutes a crucial interactive component in flipped classrooms. The tiered questioning strategy can cater to the needs of students at different learning levels while extending the waiting time after asking a question (e.g., 5-7 seconds) and providing students with ample time for contemplation. Positive feedback from teachers can significantly enhance students' confidence in participating.

Group discussions are the core interactive mechanism for enhancing classroom participation. under the flipped classroom model, group discussions exhibit a notable positive impact by effectively stimulating students' active thinking and expressive abilities through role allocation, task collaboration, and idea exchange. Well-designed group discussion tasks can significantly enhance the breadth and depth of student participation, fostering knowledge internalization and the development of critical thinking skills.

Pre-class preparation is a prerequisite for in-depth classroom interaction. As the knowledge input phase of flipped classrooms, the quality of pre-class preparation directly influences classroom participation. Structured pre-class tasks (e.g., micro-lecture videos, guiding questions) can help students establish a knowledge foundation, improve their classroom readiness, and thus promote higher-level cognitive activities. The design of pre-class tasks should balance knowledge retention with cognitive stimulation, enhancing the relevance and interest of preparation by incorporating real-world cases or simulated projects.

Note-taking during class is a critical tool for knowledge internalization and deeper engagement. In flipped classrooms, the role of note-taking during class has been redefined; it is not merely a recording tool but also a vehicle for cognitive processing. Structured note-taking methods significantly improve students' information integration skills and logical reasoning abilities by guiding information selection and knowledge framework construction. The act of taking notes itself can extend classroom focus duration and facilitate connections between pre-class preparation and in-class discussions.

Learning interest is the intrinsic drive for sustained classroom participation. Learning interest is central to driving flipped classroom implementation by stimulating students' internal learning motivation through "task-driven" and "situational teaching" approaches. High-interest students outperform low-interest groups significantly in terms of classroom contribution quality, group involvement, and post-class extension activities. Teachers need to broaden the dimensions of learning interest by designing authentic task scenarios, introducing industry cases, and involving industry guests, thereby shifting students from "passive acceptance" to "active exploration."

5.2 Recommendation

(1) Enhancing Effective Questioning by Teachers in Flipped Classrooms

From the influencing factor model of flipped classroom participation, it is evident that classroom questioning has a significant positive impact on classroom participation, underscoring the importance of effective questioning by teachers during the teaching process in flipped classrooms.

During the knowledge review phase, teachers should ask questions while respecting each student's expression of their views. Recordings of each question's answering situation can be made during the class for subsequent rewards. Teachers should act as facilitators in students' learning, adjusting the difficulty level and timing of each question accordingly and rewarding students based on the accuracy and speed of their responses. By creating an open and equitable learning atmosphere in the classroom, students will feel more relaxed and engaged in thinking and discussing learning, leading to more active participation in the questioning section, though in English context, "segment" or "phase" might be more appropriate; here I retain the Chinese term in English to maintain consistency with the original but note it can be adapted as needed). Therefore, enhancing effective questioning by teachers in flipped classrooms can better improve the effect of classroom participation.

In each lesson of flipped classrooms, teachers can introduce teaching content through various game formats and design questions to be asked during the session, avoiding questions that lack practical significance. Questioning should prioritize quality over quantity, while not forgetting the purposefulness, rigor, inquisitiveness, and inspirational nature of questions. In flipped classrooms, teachers' questions should stimulate students' interest, inspire their thinking, and be formulated based on the content of the chapter, making them valuable. Teachers can create specific problem scenarios and then pose inquisitive and inspirational questions to arouse students' cognitive interest and enhance classroom participation.

(2) Strengthening the Group Discussion Learning Model

From the influencing factor model of flipped classroom participation, it is clear that group discussions have a significant positive impact on classroom participation, indicating the importance of group discussions during the teaching process in flipped classrooms. Compared to traditional classrooms, flipped classrooms shift the knowledge delivery phase forward, providing more opportunities for group discussions and collaborative learning among teachers and students.

Group discussions are a crucial teaching organizational form in Flipped Classroom learning. When grouping students, teachers should ensure role completeness, with each member of the group having a specific role. During Flipped Classroom learning, students also play different roles in group discussions, such as participants or leaders. Through collaborative learning in group discussions, group members should promptly self-evaluate their performance and evaluate other members, ensuring that each member understands their role and the function of the entire activity segment. Maintaining an appropriate group size, typically 5-6 members in practical teaching, encourages mutual encouragement and participation among members. The division of group discussions also involves principles and methods, including principles of heterogeneity and homogeneity. Grouping students with similar cognitive abilities, thinking methods, and learning styles can enable members to focus on effectively solving learning tasks, making this grouping principle a form of homogeneity-based division. Conversely, grouping students with significant differences in cognitive abilities, thinking methods, and learning styles can stimulate more discussions through the collision of different viewpoints and methods, thereby improving the classroom participation of all group members.

Effective group discussions rely on the role and function of teachers in the classroom. Firstly, during the teaching process in flipped classrooms, teachers must promptly evaluate and supervise students' learning progress and group discussions, intervening actively when issues arise. Secondly, teachers should make a series of teaching decisions, such as appropriately adjusting the size of groups based on students' voluntary combinations. Thirdly, teachers act as guides and encouragers in group discussions, providing support and encouragement to learners when they encounter difficulties or doubts.

(3) Enhancing Students' Pre-class Self-learning Abilities

The influencing factor model of classroom participation in flipped classrooms shows that pre-class self-learning has a significant positive impact on participation. This indicates that self-learning before class plays a crucial role in enhancing classroom engagement within the flipped classroom teaching model.

In the flipped classroom teaching mode, learners have relatively ample time for self-learning before class. Therefore, enhancing students' pre-class self-learning

abilities can better promote their classroom participation. The most fundamental driving force behind students' learning lies in pre-class self-learning, which is cultivated and practiced through the implementation of the flipped classroom teaching model. Firstly, before conducting flipped classroom courses, teachers have the responsibility to guide students in their self-learning. Teachers should aim to intervene and guide less frequently over time, allowing students to understand that the self-learning process is one of overcoming difficulties, with all available learning materials serving as preparation for problem-solving. Through gradual supervision and guidance from teachers, students can gradually learn to engage in pre-class self-learning and develop this habit. Secondly, one of the objectives of teaching is for teachers to guide students in selecting learning goals based on their learning situations, thereby cultivating and enhancing learners' self-learning abilities and stimulating their initiative to learn new things. Thirdly, checking students' self-learning progress enables teachers to better prepare their lessons.

(4) Strengthening Students' Secondary Processing and Review of Note-taking During Class

The influencing factor model for classroom participation in flipped classrooms shows that note-taking during class significantly enhances student participation. This suggests that taking notes plays a crucial role in fostering engagement within the flipped classroom teaching model.

In traditional classrooms, teachers present content to be recorded on the blackboard, and learners then engage in the process of secondary processing and review. In contrast, in flipped classrooms, teachers initiate teaching through problem discussions. During the knowledge review and mid-term review stages, teachers should encourage learners to take notes on the analysis of teacher-provided questions, allowing them to familiarize themselves with the basic structure of the teaching content and record key knowledge points in detail. Through observations of groups, it has been noted that after teachers announce test scores, some members of the group increase their frequency of note-taking during class. Teachers can periodically announce test scores to motivate learners to diligently record knowledge points in class. Data indicates a significant positive correlation between note-taking during class and critical thinking, knowledge transfer, and learning interest, suggesting that note-taking during class is also beneficial for students' multifaceted development.

Revisiting and organizing notes taken during class is an effective method of reflection and summarization, which is a crucial component of the flipped classroom learning model for enhancing classroom participation and consolidating knowledge. To avoid the drawbacks and repetitions of previous classroom learning methods, regular reflection and summarization are essential. To maximize learners' participation in flipped classrooms, students should pay attention to knowledge and questions not covered by the teacher when organizing their notes, and supplement them with more

extended questions. In the process of solving challenging problems, learners can also grasp the core knowledge and content applied in the course, enabling knowledge transfer and fostering their unique ways of thinking and problem-solving.

(5) Enhancing Students' Learning Interest in Course Content

From the influencing factor model of classroom participation in flipped classrooms, it can be observed that learning interest has a significant positive impact on classroom participation. This indicates that, in flipped classroom learning, enhancing students' learning interest in course content is crucial for fostering classroom participation.

Emphasizing the enhancement of students' learning interest in flipped classroom learning can better promote their classroom engagement. To boost learners' learning interest in course content, firstly, in flipped classroom teaching, teachers should present important questions in unique ways. When learners encounter meaningful yet uninteresting questions, their thinking tends to be passive, and their attitudes apathetic. Questions that do not spark interest are even less likely to motivate students or stimulate their thinking. Therefore, not every question posed will inspire their minds or pique their interest. When designing questions, teachers must carefully consider how to structure them, which questions to ask, and which to avoid, ensuring clarity and direction. Students should not feel bewildered by the questions. Whether a question can evoke students' interest and resonance directly affects the learning atmosphere in the classroom and the level of classroom participation. Secondly, in flipped classrooms, teachers should enhance the appeal and affinity of teaching activities, ensuring they are active, vibrant, and meaningful. This requires teachers to meticulously design innovative teaching scenarios offline and use positive, healthy, and lively teaching language to immerse students in the scenario, blending emotion with context, fully activating learners' peak performance states, and naturally triggering their desire for learning. Finally, the presentation format of learning materials should be changed periodically.

5.3 Further Study

Although this study has achieved certain results in exploring the implementation effects of flipped classrooms in the marketing major at Hubei Province First Secondary Vocational School, there are still many limitations due to constraints in actual research conditions, survey time, and personal capabilities. Based on the current study's limitations, future research can be expanded and deepened in the following areas:

(1) Expanding the Sample Range to Enhance Research Generalizability

This study distributed only 351 questionnaires to students from a specific school and major, limiting the sample coverage and making it difficult to fully reflect the learning characteristics of marketing students from different regions and levels of secondary vocational schools. Future research should further expand the scope of respondents, covering more regions, school types, and student groups with varying learning levels, using stratified or cluster sampling methods to improve the representativeness of the sample and the generalizability of the research conclusions.

(2) Optimizing the Questionnaire Design to Improve Measurement Tool Precision

Although this study conducted reliability and validity tests on the five dimensions of the questionnaire, there is still some subjectivity in the question item settings, which may not fully capture learners' true experiences. Future research can combine qualitative research methods (such as in-depth interviews and focus groups) to further optimize questionnaire items, ensuring unambiguous problem statements and exploring potential influencing factors (such as family background, and technology device usage habits). Additionally, multi-dimensional scales (such as learning engagement scales, and self-efficacy scales) can be introduced for cross-validation to enhance the precision and reliability of measurement tools.

(3) Deepening Data Analysis Methods to Uncover Deeper Data Value

This study mainly used basic methods such as descriptive statistics and correlation analysis, limiting the depth of data mining. Future research can introduce advanced statistical methods such as structural equation modeling (SEM) and hierarchical linear modeling (HLM) to analyze the multiple mediating and moderating effects of flipped classroom implementation effects. Furthermore, learning analytics techniques (such as learning trajectory analysis, and social network analysis) can be combined to analyze the impact mechanisms of flipped classrooms from multiple dimensions, including learning behavior, cognitive engagement, and emotional investment, providing more refined data support for teaching improvement.

This study provides preliminary references for the practical exploration of flipped classrooms in the marketing major of secondary vocational schools. However, due to research constraints, the generalizability of the conclusions remains to be verified. Future research needs to continue making efforts in sample representativeness, tool precision, method depth, perspective comprehensiveness, and theoretical innovation to promote the localization and innovation of flipped classrooms in secondary vocational education, providing stronger empirical support for cultivating high-quality skilled talents adapted to the needs of the digital economy.

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Appendix

Dear Sir/Madam,

Thank you for your participation in this questionnaire survey. The survey will be conducted anonymously, and your relevant information will be kept confidential. Thank you again for your cooperation.

Part Ⅰ:

Please fill in the following basic information:
1.Your gender:
A Male
B Female
2.Your grade:
A First-Year Secondary Vocational School
B Second-Year Secondary Vocational School
C Third-Year Secondary Vocational School
3.Class Committee Position:
A Yes
B No
4.Family Monthly Income:
A Less than 5,000 yuan
B 5,001-8,000 yuan
C 8,001-10,000 yuan
D More than 10,000 yuan

Part Ⅱ:

Please judge to what extent you agree with the following statement; choose the most appropriate option, and mark the corresponding number " √. " The questionnaire used a Likert scale, ranging from 1 to 5 in which one indicates strongly disagree, two indicates relatively disagree, three indicates neutral, four indicates relatively agree , and five indicates strongly agree

Measuring Item	Strongly Disagree	Relatively Disagree	Neutral	Relatively Agree	Strongly Agree
Classroom Questioning					
When your teacher asks questions, the method most frequently used is "teacher asks, students answer."					
When the teacher poses a					

question, how often do you answer correctly?					
In flipped classrooms, when a classmate raises a question or presents a different viewpoint to the teacher, the teacher encourages everyone to ask questions and engage in appropriate discussions.					
Group Discussions					
In group discussions during flipped classrooms, you actively participate in speaking.					
In group discussions during flipped classrooms, you listen attentively to the contributions of other group members.					
In group discussions during flipped classrooms, the student who speaks the most within your group is usually the one with better academic performance.					
Pre-class Preparation					
The amount of knowledge to be learned in pre-class self-study is appropriate.					
The difficulty level of pre-class self-study is appropriate.					
You have a good grasp of the material learned in pre-class self-study.					
Note-taking During Class					
It is necessary to take notes during Flipped Classroom learning.					
You often take notes during Flipped Classroom learning.					
Taking notes and					

understanding them in flipped classrooms helps you engage more fully in classroom learning.					
Learning Interest					
I am interested in every section of the textbook.					
When the teacher poses a question, I often think actively.					
Even without supervision, I can take the initiative to participate in learning.					
Classroom Participation					
In flipped classrooms, I take the initiative to answer the questions posed by the teacher.					
During group discussions, I frequently express my viewpoints and ideas.					
I diligently completed the pre-class preparation tasks assigned by my teacher.					
During the class, I can maintain my concentration throughout.					
After class, I take the initiative to consult relevant materials to deepen my understanding of the classroom content.					

บันทึกข้อความ

ส่วนงาน บัณฑิตวิทยาลัย สาขาบริหารธุรกิจ โทร.ภายใน 5336

ที่ มส 0210.01 / 0265 **วันที่** 14 กันยายน 2568

เรื่อง ขออนุมัติสำเร็จการศึกษาประจำปีการศึกษา 2567

เรียน ท่านอธิการบดี

เรื่องเดิม นักศึกษาหลักสูตรบริหารธุรกิจมหาบัณฑิต MISS. XIANG MEIFANG รหัสนักศึกษา 6417195815 ได้ศึกษารายวิชาครบถ้วนสมบูรณ์ และได้ปฏิบัติตามเกณฑ์สำเร็จการศึกษาตามที่มหาวิทยาลัยสยามกำหนดเรียบร้อยแล้ว ทั้งนี้พร้อมยื่นเรื่องขออนุมัติสำเร็จการศึกษา โดยมีรายละเอียดดังต่อไปนี้

1. ผ่านการตรวจสอบความซ้ำซ้อนด้วยโปรแกรม Grammarly เมื่อวันที่ 1 กรกฎาคม 2568
2. ผ่านการสอบประมวลความรู้ข้อเขียน เมื่อวันที่ 26 เมษายน 2568
3. ผ่านการสอบปากเปล่าขั้นสุดท้ายวิชาการค้นคว้าอิสระ เมื่อวันที่ 8 พฤษภาคม 2568
4. ผ่านเกณฑ์มาตรฐานความรู้ภาษาอังกฤษ Oxford Placement Test score 53 CEFR B1 เมื่อวันที่ 8 พฤษภาคม 2568
5. ผ่านการประชุมวิชาการระดับนานาชาติ at The 18th National and International Academic Conference on "Sustainable Horizon: Transforming Ideas into Impact" Subject : The Influence Factors of Flipped Classroom Participation of Marketing Students at Hubei Province First Secondary Vocational School on 6-7 August 2025, United Nations Conference Centre Bangkok Thailand

เรื่องพิจารณา เพื่อพิจารณาเข้าประชุมสภามหาวิทยาลัย และอนุมัติผู้สำเร็จการศึกษา ประจำปีการศึกษา 2567 ดังรายละเอียดเอกสารประกอบการสำเร็จการศึกษาตามที่แนบมา

จึงเรียนมาเพื่อพิจารณาอนุมัติ และให้ดำเนินการต่อไป

(รศ.ดร.จอมพงศ์ มงคลวนิช)
คณบดีบัณฑิตวิทยาลัย สาขาบริหารธุรกิจ

ตรวจหนังสือวาน 18 เรียบร้อยแล้ว
19 ก.ย. 68

สำนักงานอธิการบดี
เอกสารฉบับนี้สามารถสืบโหลดเข้าฐานข้อมูลได้
ลงชื่อ
วันที่ 19/9/68