THE FACTORS INFLUENCING THE QUALITY OF CLASSROOM LEARNING -A CASE STUDY OF KUNMING MEDICAL UNIVERSITY

QIAN YUNRU
6617195029

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QIAN YUNRU

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

Advisor ..... Chao Qiu

(Dr. Qiu Chao)

Date: 25 / 11 / 2024

.....

(Associate Professor Dr. Jomphong Mongkhonvanit)
Dean, Graduate School of Business

Date 24 / 03 / 2025

Title: The Factors Influencing the Quality of Classroom Learning -A Case Study of Kunming Medical University

Researcher: Qian Yunru

Degree: Master of Business Administration

Major: Educational Management

Advisor: .....

(Dr. Qiu Chao)

..... / ..... / .....

ABSTRACT

As a well-known medical school in China, the teaching quality of Kunming Medical University plays an important role in cultivating medical talents. In this study, through the systematic investigation and analysis, the main factors affecting the classroom learning quality of medical students in Kunming Medical University are discussed, and the corresponding improvement strategies are proposed. The study aims to achieve the following objectives: 1) To explore the current situation of classroom learning quality of Kunming Medical University; 2) To examine the factors affecting the quality of classroom learning of medical students in Kunming Medical University; 3) To propose optimization strategies to improve the classroom learning quality of medical students based on the ADDIE model.

In this study, the quantitative research method of questionnaire survey was adopted. The random sample was medical students of all grades in Kunming Medical University. 220 questionnaires were distributed, and 215 valid questionnaires were collected, with a recovery rate of 97.73%. The research results are as follows: 1) The classroom learning in Kunming Medical University has the problems of insufficient learning motivation, single mode, disconnected practice and incomplete evaluation; 2) The factors affecting the classroom learning quality of medical students in Kunming Medical University are learning motivation, learning style, learning content and learning assessment.3) Based on the ADDIE model, Kunming Medical University should implement a series of measures to enhance classroom learning quality. Firstly, students need to clarify their learning motivation, make full use of resources, and actively participate in collaboration to strengthen their motivation. Secondly, combining active learning with diverse learning methods can improve classroom participation and learning quality, addressing individual needs. Additionally, optimizing course content, adjusting course difficulty, integrating clinical practice, and increasing learning diversity will enhance students' interest and practical application. Finally, establishing a diversified evaluation system that includes formative assessments and personalized feedback will comprehensively measure students' abilities, promote continuous improvement, and enhance motivation

and classroom quality. The implementation of these strategies will effectively meet students' learning needs and improve the overall teaching effectiveness.

This study provides some reference for improving the classroom learning quality of students in Kunming Medical University, but due to time and sample limitations, the study mainly focuses on the recommendations at the school level. Future research can be extended to the government, medical institutions, students and families, focusing on working with hospitals to improve students' practical ability and professional quality.

Key words: quality of classroom learning, learning motivation, medical education

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Qian Yunru

DECLARATION

I, Qian Yunru , hereby declare that this Independent Study entitled “THE FACTORS INFLUENCING THE QUALITY OF CLASSROOM LEARNING -A CASE STUDY OF KUNMING MEDICAL UNIVERSITY” is an original work and has never been submitted to any academic institution for a degree.

Qian Yunru

(Qian Yunru)

0ct 16, 2024

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Chapter 1 Introduction

1.1 Background of the Study

With the deepening of global medical education reform, how to improve the learning quality of medical students has become one of the important issues to be solved in major medical colleges and schools. In China, with the rapid development of higher education and the increasing social demand for high-quality medical talents, the learning effect of medical students is not only related to the overall level of medical education, but also has a profound impact on the quality of social medical services. Especially in the context of the continuous progress of modern medical technology, the social requirements for medical workers are no longer limited to mastering basic medical knowledge and skills, but require them to have comprehensive clinical judgment ability, critical thinking, problem-solving ability and strong independent learning ability. Therefore, how to improve the learning quality of medical students has become an urgent task. However, despite the advantages of medical schools in both teaching resources and faculty strength, current medical education still faces some challenges that need to be addressed. For example, many medical students have a relatively simple learning style, often relying on traditional classroom teaching and after-class review, and lack the cultivation of critical thinking and the awareness of independent learning. In addition, with the acceleration of the updating speed of medical knowledge, the amount of information that medical students need to master greatly increases, but the utilization rate of teaching resources is not high, and students have limited access to the latest medical knowledge, which affects their learning effect to a certain extent.

As a well-known medical school in China, Kunming Medical University has rich teaching resources, excellent learning atmosphere and strong faculty, and is an important base for cultivating medical talents (Frenk et al., 2010). Nevertheless, medical students in Kunming Medical University still face some difficulties in the actual learning process. For example, some students face heavy academic tasks, feel learning pressure and difficult to arrange time effectively, resulting in low learning efficiency (Kirkpatrick & Kirkpatrick, 2006). Some students lack independent learning ability to make full use of the existing learning resources for deep learning (Biggs & Tan, 2011). In addition, the problems of limited clinical practice opportunities and the disconnect between theory and practice have also affected the improvement of students' learning quality and clinical ability (Harden & Laidlaw, 2017). Based on this, this study takes the medical students from Kunming Medical University as the research object, deeply analyzes the practical problems encountered in the learning process, and discusses the effective strategies to improve the learning quality. Through the investigation and analysis of the learning status of medical students in Kunming Medical University, this study aims to find and solve the existing problems and provide

effective strategies and suggestions for improving the learning quality of medical students.

The ADDIE model (analysis, design, development, implementation, and evaluation) provides a systematic framework for improving the students' learning quality. Through the comprehensive design of learning motivation, method, content and evaluation, the model forms an organic teaching system and helps us to learn better. In the analysis stage, we can understand our learning needs and foundation, and clarify our learning objectives, which makes the course content more suitable for our actual situation. In the design stage, the appropriate learning motivation is selected to make the knowledge transmission more coherent and effective. In the development stage, the learning style is carefully designed according to our learning needs to help us better understand and master the knowledge. In the implementation stage, the application of learning content allows us to more actively participate in the classroom and improve the learning effect. In the final evaluation stage, we tested whether we have achieved the learning goals and improved the course content according to the results. Especially in medical education, the ADDIE model makes the learning process more systematic, helping us to better master complex medical knowledge and skills, and ultimately improve the quality of learning.

Kunming Medical University, as a well-known medical institution in China, faces practical challenges in improving classroom learning quality. This study focused on Kunming Medical University, exploring the main factors affecting the quality of classroom learning among its medical students. Based on the ADDIE model framework, improvement recommendations will be proposed to provide practical guidance and theoretical support for the continuous enhancement of medical education.

1.2 Questions of the Study

The research questions in this study mainly included：

(1) What is the current situation of the classroom learning quality of medical students in Kunming Medical University?

(2) What are the factors affecting the quality of classroom learning of medical students in Kunming Medical University?

(3) Based on the ADDIE model, how can Kunming Medical University effectively improve the classroom learning quality of medical students?

1.3 Objectives of the Study

(1) To explore the current situation of the classroom learning quality of medical students in Kunming Medical University.

(2) To examine the factors affecting the quality of classroom learning of medical students in Kunming Medical University.

(3) Based on the ADDIE model, to provide optimization strategies in order to improve the classroom learning quality of medical students.

1.4 Scope of the Study

The study subjects included medical students of Kunming Medical University, covering students majoring in basic medicine, clinical medicine, pharmacy and public health. The research focused on the evaluation of classroom learning quality, analysis of influencing factors, and improvement strategies, specifically learning motivation, learning style, learning content and learning assessment. The research used the quantitative research method, and a questionnaire survey was conducted to comprehensively collect data and analyze the classroom learning situation and feedback of medical students in Kunming Medical University. The study period ranged from September 2023 to June 2024, covering a full academic year period.

1.5 Significance of the Study

1.5.1 Theoretical Significance

The theoretical significance of this study lies in providing systematic theoretical support for the improvement of classroom learning quality in higher education, especially in medical education. First, based on the analysis stage of ADDIE model, this study deeply explores the complex factors of classroom learning quality from the perspective of students, expands the theoretical system in the field of medical education, and enriches the connotation of higher education quality research. Secondly, in the design and development stage, this study integrates the multidisciplinary perspectives of pedagogy, psychology and sociology to construct a comprehensive analytical framework, which provides a more systematic theoretical basis for the influencing factors of classroom learning quality, which is helpful to promote the development and innovation of interdisciplinary research. Finally, in the implementation and evaluation stage, this research puts forward specific strategies for improving classroom learning quality, which not only provides a clear path for the transformation of educational theory into practice, but also lays a solid theoretical foundation for the in-depth promotion of educational reform. Therefore, this study is not only important in enriching and expanding the theoretical level of higher education quality research, but also demonstrates its wide application value in educational practice.

1.5.2 Practical Significance

This study is based on the ADDIE model to explore the factors affecting the quality of classroom learning at Kunming Medical University, which has important theoretical and practical significance. First, by applying the ADDIE model to the field of medical education, this study enriches the practice cases of the theory in higher education, especially in the context of medical education. The ADDIE model emphasizes the systematic integration of teaching content, methods and evaluation, while this study reveals how to improve the learning effect of medical students by scientifically designing the teaching process, which provides a practical basis for the ADDIE model.

Secondly, this study extends the applicability of the ADDIE model to reveal the influence of multi-dimensional factors such as learning motivation, learning methods,

teacher-student interaction and teaching resources on the classroom learning quality. This finding deepens the understanding of the role of instructional design in complex learning environments and provides theoretical support for the optimization of curriculum design and learning strategies for medical students in medical education.

In practice, this study is mainly reflected in providing specific improvement suggestions and practical strategies for improving the quality of classroom teaching in medical schools. Through the investigation and analysis of the current situation of medical students in Kunming Medical University, this study will reveal the existing problems and deficiencies, help school administrators and teachers to better understand the needs of students, improve the learning methods and content, and improve the learning effect. The improvement strategy proposed by the study will combine the ADDIE model teaching method to provide practical guidelines to help students effectively improve interactivity and participation in the classroom. The results of this study not only have reference value for Kunming Medical University, but also can provide reference and inspiration for other medical colleges and promote the overall improvement of the quality of medical education.

1.6 Definition of Key Terms

1.6.1 Quality of Classroom Learning

Classroom learning quality refers to the degree to which students acquire knowledge, skills, attitudes and other learning outcomes in the classroom teaching process, as well as their performance in the understanding, application and comprehensive use of these knowledge and skills. The quality of classroom learning is not only reflected in students' academic performance, but also includes their depth of learning content, the improvement of self-directed learning ability, problem-solving ability, and the improvement of learning attitude and participation (Wang & Zhang, 2018).

1.6.2 Learning Motivation

Learning motivation refers to the internal driving force and external motivation shown by individuals in the process of learning, which affects the behavior, effort degree and learning effect of learners. Learning motivation can be divided into intrinsic motivation and external motivation, Internal motivation from individual interest in learning content, curiosity and self-realization needs, and external motivation is related to external factors, such as rewards, evaluation and social expectations (Ryan & Deci, 2000), in educational psychology, learning motivation is considered to be an important factor affecting learning achievement.

1.6.3 Learning Style

Learning style refers to the strategies and methods adopted by students in the learning process, including the way of understanding, processing and remembering information. This includes not only specific learning activities, such as reading, note-taking, discussion, and practice, but also involves students' attitudes, motivation, and

commitment to learning (Biggs & Tang, 2011). Learning methods are usually divided into deep learning, surface learning and strategic learning and other types. Different learning methods will significantly affect students' learning effect and knowledge mastery level (Entwistle, 2009).

1.6.4 Learning Content

Learning content refers to the specific materials and topics of knowledge, skills, and information that students need to master in the course of education or training. These can include curriculum materials, case studies, experimental data, theoretical concepts, and practical applications related to specific disciplines or fields. The choice and organization of learning content have an important impact on the learning effect, aiming to ensure that students can fully understand what they have learned, and can be effectively applied in practice (Gagne, 1985).

1.6.5 Learning Assessment

Learning assessment refers to the process of measuring and judging students' knowledge, skills and attitudes in the process of learning through various methods and tools. The purpose of learning evaluation is to assess student learning outcomes, monitor learning progress, and provide feedback to facilitate further development of learners. Evaluation can be divided into formative evaluation and summary evaluation: the summative evaluation is usually conducted during the learning process, aiming to help students understand their learning progress and adjust; the summary evaluation is conducted at the end of the study to assess whether students have achieved the predetermined learning objectives (Black & Wiliam, 1998).

1.6.6 Medical Education

Medical education refers to the systematic education process for the cultivation of medical professionals, including the teaching and learning of medical knowledge, skills and attitudes. It covers not only the education of professional knowledge such as basic medicine, clinical medicine and public health, but also the cultivation of students' humanistic quality, professional ethics and clinical practice ability (Schmidt, 2000). The goal of medical education is to train healthcare workers with comprehensive quality to meet the changing needs of health services and to improve the health level of patients (Cook et al., 2011).

Chapter 2 Literature Review

2.1 Introduction

This chapter primarily summarizes scholars' research on classroom learning quality and its influencing factors, providing a solid theoretical foundation for this study. By analyzing the ADDIE model framework, this chapter discusses how to optimize learning outcomes through the scientific design of strategies for learning motivation, learning styles, learning content, and learning assessment. Therefore, this chapter focuses on systematically reviewing the literature on classroom learning quality in China and other countries, organizing existing research findings to understand the current state of research, key viewpoints, and existing shortcomings, with the aim of providing theoretical support and research basis for this study.

2.2 Literature Review

2.2.1. Learning Motivation

Learning motivation is one of the core factors affecting the quality of students' learning, which refers to the power of students internally or externally to drive their learning behavior in the learning process. Scholars from China and other countries have conducted extensive studies on learning motivation from different perspectives, and discussed their influence on learning behavior, learning effect and overall learning quality. The study of (Deci & Ryan, 2000) shows that learning motivation can influence the behavior and learning effect of learners through the satisfaction of internal needs, and further improve the overall learning quality.

Learning motivation is closely related to learning quality (Entwistle, 1991), especially in higher education, and the strength of learning motivation directly affects students' learning methods and learning effects. Biggs (1996) also stressed that assessing the quality of students' learning should focus not only on whether they use effective learning methods, but also on whether they have achieved significant learning results through learning. By improving their learning motivation, students can adopt more active strategies in the learning process to improve the overall learning quality.

Research also shows that with the expansion of the education system, in both higher education and vocational education, learning motivation has become a key factor affecting the quality of students' learning. Wang and Yang (2020) proposed that by building a diversified evaluation system, students' learning motivation can be effectively stimulated and their learning quality can be improved. At the same time, Ye (2018), from the perspective of students 'rights and responsibilities, believed that clarifying students' rights and responsibilities can enhance their learning enthusiasm and responsibility, which plays an important role in improving learning motivation and overall learning quality. Learning motivation can be divided into two categories: intrinsic motivation and external motivation. Internal motivation refers to students' interest, curiosity and desire for self-improvement in learning activities themselves, and external motivation includes external rewards, academic pressure and social expectation. Entwistle (1991) believed that intrinsic motivation drives students'

learning behavior more persistently, enabling them to invest more energy in the learning process and obtain higher quality learning results. Although external motivation can motivate students in the short term, in the long term, the effect of learning will be limited.

In terms of the factors that affect learning motivation, Biggs (1987) pointed out that students 'learning environment, teaching methods, teachers' teaching style and evaluation system will all have an impact on students' learning motivation. For example, encouraging independent learning, providing diversified learning resources, and establishing a scientific and reasonable evaluation mechanism can help to improve students' inner motivation. Domestic scholars such as Chen (2019) found through field research of secondary vocational students that students 'learning motivation is closely related to the teaching quality of the school, teachers' teaching attitude and social support system.

2.2.2. Learning Style

Scholars of other countries have mostly studied the factors influencing learning style from both internal factors and external factors. Internal factors focus on students' learning methods, learning attitudes, learning input, etc. For example, Byrne（2001) proved that the core factor influencing students' learning methods; if students can master more complex and deep methods and strategies, their learning methods will be improved. The experimental results of Chen (2010) also showed that students 'existing knowledge and experience have a positive effect on their learning style, and students' positive attitude towards the learning content will also affect the performance of their learning style. External factors focus on the school environment, teaching methods, teacher-student interaction and other aspects. For example (Ko & Park, 2012) believed that the school environment, the frequency of students participating in class activities, and teacher-student interaction can all affect the improvement of students' learning style. Stephen Billett（2001). On the basis of workplace learning theory, it points out that the types of activities students engage in, environmental factors, and how students understand and construct knowledge from activities and environment all affect students' learning style. Chinese scholars' research on the influencing factors of learning style also mainly starts from internal and external factors. Some scholars believe that internal factors play a decisive role, others emphasize the importance of external factors, and others believe that learning style is the result of the interaction between internal and external factors. For example, (Yu & Huang, 2018) pointed out that students' learning motivation is the decisive factor affecting the learning style and can guide students to take active strategies in their learning.

2.2.3 Learning Content

Learning content is one of the important factors affecting the quality of students, especially in the field of medical education. The content includes not only textbooks and reference books, but also multimedia materials, online courses, simulation laboratories

and other learning tools. The richness and relevance of these contents have a direct impact on students' learning motivation, learning strategies and learning effects.

Researchers in other countries have extensively explored the influence of learning content on learning quality. For example, Miller and Schuster (2016) noted that modern medical education should make full use of information technology and develop diverse learning content to meet the learning needs of different students. They emphasize that web-based learning platforms can provide a wealth of learning materials and enhance students' learning experience through interactivity. In addition, the introduction of the Blended Learning (mixed learning) model also provides medical students with more learning options and flexibility, allowing them to balance classroom learning with self-learning.

Research by Chinese scholars in this field also shows that the quality and relevance of learning content are crucial to students' learning outcomes. (Zhang, 2018). Through the research of medical students, we found that the rich learning content can significantly improve the students' interest in learning and independent learning ability. He suggested that medical education institutions should integrate various forms of learning content, including video lectures, online discussions, and virtual laboratories, to enhance students' overall learning experience.

In addition, (Wang, 2020) pointed out that teachers play a key role in the choice and use of learning content. The teacher should allocate the learning content reasonably according to the course objective and the student learning characteristic to improve the effectiveness of classroom teaching. Teachers' guidance and feedback can help students make better use of these content and promote their understanding and application of knowledge.

2.2.4 Learning Assessment

Learning evaluation and feedback are an important part to improve the quality of students' learning, especially in medical education. The research on learning evaluation by scholars in China and other countries mainly focuses on its influence on students' learning process and the effectiveness of their feedback mechanism.

Studies from other countries show that learning evaluation is not only a consideration of students' learning results, but also pays more attention to the development and change of students in the learning process. Black and Wiliam (1998) pointed out that formative evaluation can significantly improve the learning effect of students, especially in the medical field, timely feedback can help students identify their learning defects, thus adjust learning strategies and improve learning quality. Hattie and Timperley (2007) further emphasized that the effectiveness of feedback depends on its clarity and pertinence, and that excellent feedback can motivate students to continue learning and improve their sense of self-efficacy.

In China, the research of learning evaluation and feedback has gradually received attention. Wang Jun (2019) pointed out that the evaluation of teachers in medical education should not only pay attention to students 'knowledge mastery, but also include students' practical ability and clinical thinking ability. At the same time, (Li, 2021) pointed out that teaching feedback should be a two-way process, and the

interactive feedback between teachers and students can effectively promote the learning motivation and help students better understand the learning content. The study of Zhang (2022) showed that the combination of diversified evaluation methods, such as self-evaluation, mutual evaluation and teacher evaluation, can more comprehensively reflect students 'learning status, and promote students' reflection and improvement of their own learning.

2.3ADDIE Model

In student-centered instructional design, the ADDIE model provides a systematic framework for enhancing learning quality, particularly demonstrating significant effects in four areas: learning motivation, learning methods, learning resources, and learning assessment and feedback (Gagné, 1985). In the Analysis phase, students first need to conduct a self-assessment of their learning motivation. They should understand whether they possess strong intrinsic motivation (such as interest in medicine or a desire for personal growth) or extrinsic motivation (such as exam pressure or career development needs) (Deci & Ryan, 2000). In the Design phase, students can create a reasonable learning plan based on the analysis results. They should consciously enhance their learning motivation by choosing suitable learning methods and resources to stimulate intrinsic drive (Schunk, 2012). In the Development phase, students should develop specific learning resources and tools according to their designed learning plans. They can utilize a wealth of learning resources, including books, online courses, videos, and practical tools, to meet different learning need (Mayer, 2009).In the Implementation phase, students should effectively apply the developed learning resources and tools in actual learning. Throughout the learning process, students need to actively engage their learning motivation and make full use of different learning methods to enhance learning outcomes (Kolb, 1984). In the Evaluation phase, students should conduct a comprehensive self-assessment to examine the effectiveness of their learning. Evaluation should not only focus on final performance results but also analyze whether learning motivation has improved, whether the choice of learning methods has been effective, and whether resources have been utilized adequately. By reflecting on successes and shortcomings during the learning process, students can identify areas needing further improvement（Black & Wiliam, 1998).

2.4 Background of Kunming Medical University

Kunming Medical University, located in Kunming City, Yunnan Province, is a higher medical institution that integrates teaching, medical services, and scientific research. The school's history can be traced back to 1933, reflecting a long-standing tradition and rich heritage. It currently has tens of thousands of full-time and adult education students, offering multi-level education that includes undergraduate, master's, and doctoral programs.

The university has 18 colleges (departments) and provides 35 undergraduate majors, including national-level first-class and specialized programs. With a strong faculty, the university has attracted high-level talents such as Yangtze River Scholars

and National Distinguished Young Scholars. Its research strength is robust, with multiple disciplines ranking in the top 1% globally in ESI (Essential Science Indicators) and winning numerous national-level scientific and technological awards.

Kunming Medical University is committed to international development, establishing cooperative relationships with over 90 universities and research institutions in more than 30 countries and regions. It serves as an important base for French medical education. Additionally, the university initiated the South and Southeast Asia Medical Education and Healthcare Alliance to promote regional medical exchange and cooperation. Adhering to its motto of "Cultivating Virtue, Pursuing Knowledge, Serving Society," Kunming Medical University not only emphasizes talent cultivation and research innovation but also actively assumes social responsibilities, contributing to the economic and social development of the region. The university is progressing towards its goal of becoming a renowned high-level medical university both domestically and internationally. In March 2024, the university had 21,939 students and 1,595 staff members.

2.5 ADDIE Model Framework

This study analyzed the improvement of medical students based on the ADDIE model, as shown in Figure 2.1

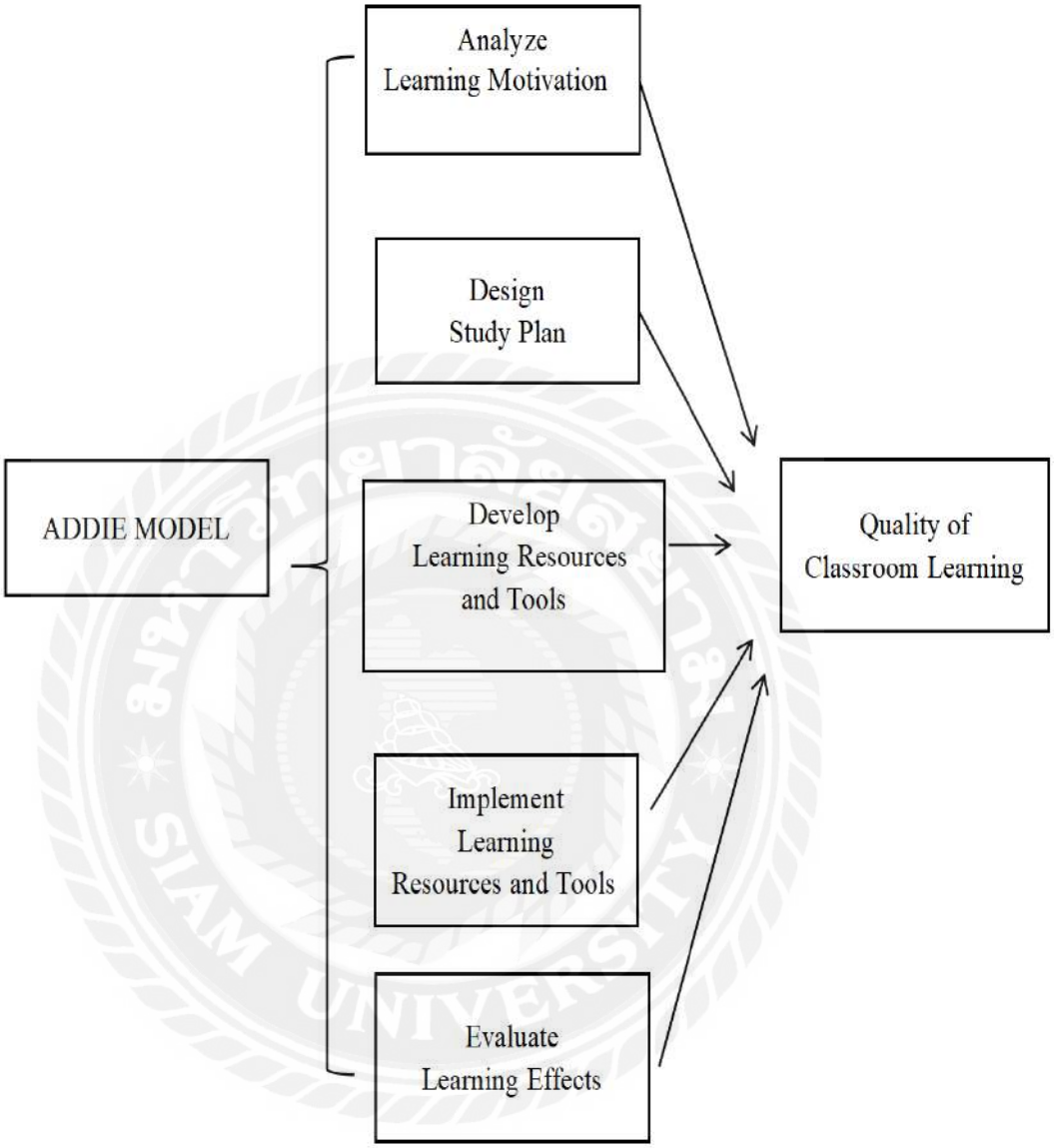

Figure 2.1 ADDIE Model Framework

2.6 Research Framework

On the basis of the research results of scholars from China and other countries on the improvement of learning quality, combined with the learning status of Chinese medical schools and the actual needs of medical talent training, the theoretical framework of this study is constructed：

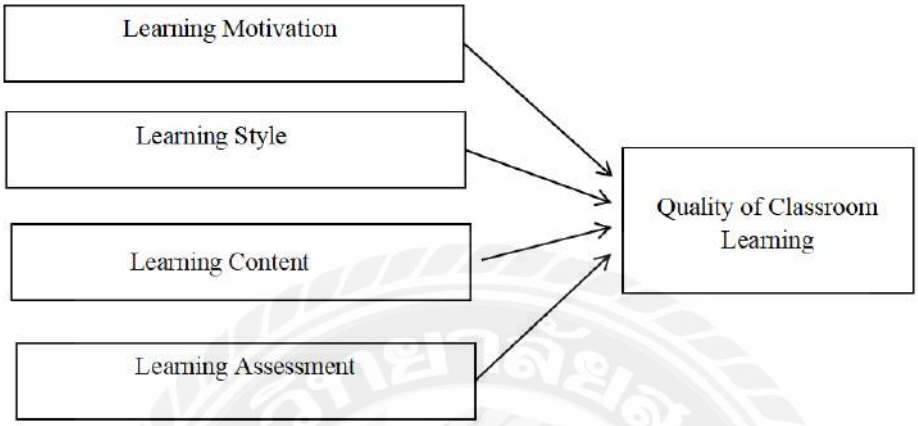

Figure 2.2 Research Framework

Chapter 3 Research Methodology

3.1 Research Design

This study adopted the quantitative research method to analyze the factors affecting the quality of classroom learning in Kunming Medical University, using a questionnaire survey. Based on the ADDIE a model, a questionnaire was designed, covering multiple dimensions of learning motivation, learning style, learning content, and learning assessment. The collected data were analyzed using correlation analysis and regression analysis, revealing the key factors affecting the quality of classroom learning and their interrelationships.

3.1.1 Design of the Questionnaire

The study population was full-time medical students registered a Kunming Medical University. While designing the questionnaire, this study reviewed a large body of research literature and invited scholars in the fields of education, medicine and teaching quality research to review the questionnaire and make suggestions accordingly. The questionnaire was supplemented and modified, and finally a questionnaire was formed to assess the quality of classroom learning.

The first part of questionnaire primarily included the following aspects: students' gender, grade level, professional background, average daily study time, and main methods of extracurricular learning. The questionnaire used multiple-choice questions, with gender categorized as "male" and "female," and grade levels ranging from freshman to master's degree. The majors covered various fields of medicine, including basic medicine, clinical medicine, and pharmacy. Additionally, the questionnaire inquired whether students could maintain focus in class and the common methods they used for extracurricular learning (such as reading textbooks, attending lectures, conducting experiments, and practical exercises).

The second part of questionnaire was designed based on the ADDIE model and included four dimensions: learning motivation, learning style, learning content, and assessment.

The questionnaire adopts five point Likert scale, 1) very disagree; 2) disagree; 3) general; 4) agree; 5) very agree.

Table 3.1 Questionnaire Design

Learning motivation	1. I have a strong interest in medical courses.
	2. I think learning medical knowledge is very important for my future career development.
	3. I actively participate in discussions and ask questions in class.
	4. I will spend extra time preparing and reviewing the medical course.
	5. I am satisfied with my performance in medical

	study.
Learning style	6. I am used to learning medical knowledge by reading textbooks and materials.
	7. I like to deepen my understanding of medical knowledge through group discussions.
	8. I often use Internet resources (such as videos and online courses) to assist my learning.
	9. I think practical operation is very important to master medical knowledge.
	10. I will make a detailed study plan and strictly implement it.
Learning content	11. The course content is rich and practical.
	12 The course content is able to reflect the latest medical research and development
	13. The course arrangement is reasonable and moderate difficulty.
	14. The course content is closely integrated with clinical practice
	15. I am satisfied with the overall arrangement of the course content.
Learning assessment	16. I can adjust my learning strategy according to the difficulty of the course to ensure that I master the knowledge.
	17. I can timely adjust my study plan through the evaluation results.
	18. I think the evaluation methods in class (such as tests, exams, homework, etc.) can effectively reflect my understanding of the course content.
	19. I can use a variety of learning methods to improve my learning results.
	20. I continue to improve my learning methods and quality based on the feedback.
Quality of classroom learning	21. I think the classroom teaching has promoted my deep understanding of the course content.
	22. I got enough opportunities in class to express my views and questions.
	23. I think the learning resources (such as textbooks, handouts, etc.) provided in the class are enough to support my study
	24 I felt that the teachers showed their care and support for my learning needs in class
	25. My self-assessment of my classroom learning outcomes has helped me to better master my knowledge.

3.2 Population and Sample Size

This study focused on the classroom learning quality of medical students in Kunming Medical University, and its main purpose is to analyze the actual situation of the current classroom learning quality of medical students. In view of the large student population of Kunming Medical University, with a total number of 21,939, based on the scientific method of Saunders et al. (2007)， the sample size was 220 students to ensure that the sample could fully reflect the overall characteristics and meet the statistical power requirements of the study design.

3.3 Research Hypothesis

Under the guidance of previous literature review and theoretical basis, combined with the variable selection in the study design, the study proposed the following assumptions:

Hypothesis 1: Learning motivation has a significant positive impact on the quality of classroom learning.

Hypothesis 2: Learning style has a significant impact on the quality of learning in the classroom.

Hypothesis 3: Learning content has a positive impact on the learning effect.

Hypothesis 4: The practicability of learning assessment has a significant impact on the quality of classroom learning.

3.4 Data Collection

This study mainly used a questionnaire survey to collect data. The steps of data collection are as follows: First, the questionnaire was designed, which is divided into two parts: the first part includes personal basic information, including gender, grade and major; the second part is all dimensions of classroom teaching quality, including learning motivation, learning style, learning content and learning assessment. In this study, random students were drawn from all students of Kunming Medical University. A total of 220 questionnaires were distributed, and the study period ranged from September 2023 to June 2024, covering a complete academic year cycle, and 215 valid questionnaires were recovered, with a recovery rate of 97.73%. This high recovery rate ensured the representativeness and reliability of the data and provided a solid foundation for the subsequent analysis.

3.5 Data Analysis

This study employs quantitative statistical methods to analyze the collected data, ensuring consistency with the research design and the nature of the data. Given the structured nature of the questionnaire and its focus on measurability, a series of statistical techniques was used for data analysis, specifically as follows:

Descriptive analysis: First, the researcher summarized and described the basic characteristics of the data through descriptive statistics. This process provided an initial understanding of the data distribution and central trends to help identify the overall state of the quality of classroom learning for medical students.

Correlation Analysis: To understand the relationships between various factors affecting classroom learning quality, correlation analysis was conducted. This analysis assessed the strength and direction of the relationships between variables including learning motivation, learning style, learning content, and learning assessment. By determining these correlations, we can gain insights into how these factors interact with one another and their collective impact on student engagement and learning quality.

Regression analysis was used to examine the influence of learning motivation, learning style, learning content and learning assessment on classroom learning quality.

Reliability and Validity of the Questionnaire: To ensure the reliability and validity of the questionnaire, Cronbach's Alpha was used alpha to test internal consistency and factor analysis was conducted to evaluate the effectiveness of the measurement tool.

The selection of these methods is based on their appropriateness for analyzing survey data, particularly in exploring the relationships between different variables. They can test hypotheses and derive meaningful conclusions from the collected data within the blended learning environment of Kunming Medical University.

3.6 Reliability Analysis of the Scale

3.6.1 Reliability Analysis of the Survey Questionnaire

To verify the reliability of the questionnaire, the Cronbach's Alpha coefficient was used for the reliability analysis in this study. The Cronbach's Alpha coefficient is a commonly used reliability indicator used to assess the internal consistency of the scale. A higher the coefficient value, the better the internal consistency of the scale. In general, the Cronbach's Alpha coefficient above 0.7 indicates a good internal consistency of the scale.

Table 3.2 Reliability Analysis

	Clone Bach of Alpha	number of terms
Learning Motivation	0.847	5
Learning Style	0.838	5
Learning Content	0.895	5
Learning Assessment	0.87	5
Total	0.945	20

From Table 3.2, the Cronbach's Alpha coefficient of all dimensions is above 0.8, and the Cronbach's Alpha coefficient of the overall scale is 0.945. This indicates that the questionnaire has high internal consistency and reliability and can be effectively used for data collection and analysis.

3.6.2 Validity Analysis

To verify the validity of the questionnaire, KMO (Kaiser-Meyer-Olkin) sampling suitability and Bartlett sphericity test were used for validity analysis.

Table 3.3 KMO and Bartlett Tests

Number of KMO sampling suitability quantities.		.925
Bartlett sphericity test	Approximate chi square	3755.705
	free degree	190
	conspicuousness	.000

Table 3.3 shows that the KMO value is 0.925, which is much greater than 0.7, indicating that the data are suitable for factor analysis. The significance level of the Bartlett sphericity test was 0.000, which was much less than 0.05, indicating a significant correlation between the variables.

Chapter 4 Findings and Discussion

4.1 Introduction

On the basis of the study design and data collection, this chapter focuses on the data analysis and result, the identification of specific problems, the factors affecting the classroom learning quality of students in Kunming Medical University, under the theoretical framework of ADDIE, and finally verifies the validity of the hypotheses.

4.2 Descriptive Statistical Analysis

In this study, a descriptive statistical analysis of 215 valid questionnaires collected was conducted to understand the basic information of medical students in Kunming Medical University. Below is the descriptive statistical analysis of the sample.

Table 4.1 Descriptive Statistical Analysis

variable	option	frequency	percentage
1. Gender	male	119	55.3
	female	96	44.7
2. Grade	freshman	56	26
	sophomore	69	32.1
	junior	41	19.1
	senior	44	20.5
	Master	5	2.3
3. Generally, in class, will the teacher pay attention to your class performance (being late and leaving early, sleeping, playing with your mobile phone, chatting, etc.) and remind you?	married	62	28.8
	Occasionally	123	57.2
	Often will	30	14
4. Your major is	preclinical medicine	42	19.5
	clinical medicine	85	39.5
	pharmacy	60	27.9
	public health	28	13
5. Your average self-study time per week (excluding class time)	Less than 5 hours	27	12.6
	5-10 Hours	68	31.6
	For about 10-15 hours	61	28.4
	Over the course of 15-20 hours	16	7.4
	More than 20 hours	43	20
	Read textbooks	35	16.3

6. How do you usually study after class?	Attend academic lectures	52	24.2
	State-owned enterprise personnel	93	43.3
	panel discussion	29	13.5
	Experimental and practical manipulation	6	2.8

In terms of gender, 55.3% were male and 44.7% female students. This indicates that slightly more boys than girls in the sample, but a more balanced sex ratio. In terms of grade distribution, the proportion of sophomores is the highest, accounting for 32.1%, followed by freshmen, accounting for 26.0%, junior students and seniors accounting for 19.1% and 20.5% respectively, and postgraduate students account for 2.3%. This distribution reflects the sample covering students of different grades, especially a higher proportion of undergraduates. In terms of classroom performance, 28.8% of the students said that the teacher never paid attention to their classroom performance and reminded them, 57.2% said that the teacher occasionally paid attention to and reminded them, and 14.0% said that the teacher often paid attention to and reminded them. This indicates that most students think that the teacher pays more moderate attention to the classroom performance.

In terms of specialty distribution, students majoring in clinical medicine accounted for the highest proportion of 39.5%, followed by pharmacy, 27.9%, and basic medicine and public health, 19.5% and 13.0%, respectively. This result showed higher engagement among students in clinical medicine and pharmacy, reflecting the focus in classroom quality placed by students in these majors. In terms of self-study time, 12.6% of students spent less than 5 hours, 31.6% 5-10 hours, 28.4% 10-15 hours, 7.4% 15-20 hours, and 20.0% more than 20 hours. Most of the students' weekly self-study time was concentrated between 5 and 15 hours, showing that students spend more time in extracurricular study, but some students still have less or more self-study time.

In terms of extracurricular learning methods, 16.3% of students read textbooks, 24.2% attended academic lectures, 43.3% used online learning resources (such as MOOCs), 13.5% studied in group discussions, and 2.8% study through experimental and practical operations. The results show that online learning resources and academic lectures are the main extracurricular learning methods for students, followed by traditional textbook reading and group discussion, with relatively few experimental and practical practices.

4.3 Correlation Analysis

This study conducted a correlation analysis. The purpose of the correlation analysis is to determine the strength and direction of the linear relationship between variables. In this study, the correlation between five dimensions was primarily

analyzed: learning motivation, learning style, learning content, learning assessment, and quality of classroom learning.

Table 4.2 Correlations Analysis

	Learning Motivation	Learning Style	Learning Content	Learning Assessment	Quality of Classroom Learning
Learning Motivation	1				
Learning Style	.837**	1			
Learning Content	.540**	.678**	1		
Learning Assessment	.535**	.668**	.860**	1	
Quality of Classroom Learning	.750**	.800**	.820**	.830**	1

**. At the 0.01 level (two-tailed), the correlation was significant.

Table 4.2 shows a significant positive correlation between all dimensions, suggesting a tight association between these variables. Firstly, the study results show a significant positive correlation between learning motivation and other variables. The correlation coefficient between learning motivation and learning style is 0.837, indicating a strong positive correlation at the 0.01 significance level. This suggests that students with higher motivation are more likely to adopt diverse learning styles, which in turn enhances learning outcomes. Additionally, the correlation coefficient between learning motivation and learning content is 0.540, indicating a moderate positive correlation, implying that highly motivated students are more willing to engage with diverse learning content, though the effect is relatively weaker. Similarly, the correlation between learning motivation and learning assessment is 0.535, showing a moderate positive correlation, suggesting that highly motivated students perform better in assessments. The hypothesized correlation between learning motivation and quality of classroom learning is 0.750, indicating a significant positive impact of motivation on improving classroom learning quality.

Secondly, learning style also shows a significant positive correlation with other variables. The correlation between learning style and learning content is 0.678, and between learning style and learning assessment is 0.668, both demonstrating significant positive correlations at the 0.01 significance level. This indicates that adopting diverse learning styles helps students better understand course content and perform well in assessments. Additionally, the hypothesized correlation between learning style and

quality of classroom learning is 0.800, further supporting the positive impact of diverse learning styles on classroom learning quality.

The correlation coefficient between learning content and learning assessment is 0.860, showing a strong positive correlation at the 0.01 significance level. This indicates that well-designed course content significantly enhances students' performance in assessments. The hypothesized correlation between learning content and quality of classroom learning is 0.820, suggesting that enriched and varied course content contributes to improved classroom learning quality.

Finally, the correlation between learning assessment and quality of classroom learning is 0.830, indicating that systematic and scientific assessment methods play an important role in improving classroom learning quality. This result suggests that effective learning assessment can significantly enhance students' performance and classroom quality.

4.4 Regression Analysis

In order to further clarify the role of various factors influencing the classroom learning quality of students in Kunming Medical University, this study conducted multiple linear regression analysis on the four independent variables: learning motivation, learning style, learning content and learning assessment. Through regression analysis, the contribution of each factor to the quality of classroom learning can be quantified to provide a quantitative basis for improving the quality of classroom learning.

4.4.1 Setting of the regression model

The multiple linear regression model set up in this study is:

4.4.2 Results of the regression analysis

The results of the regression analysis are shown in Table 4.3. The table presents the regression coefficients, standard errors, t-values, and significance levels for the respective variables.

Table 4.3 Regression Analysis

variable	Unstandardized Coefficients (B)	Standard Error (Std.Error)	Standardization Coefficient (Beta)	T value
Constant	1.23	0.25		4.92
Learning Motivation (X1)	0.45	0.05	0.46	9.00
Learning Style (X2)	0.38	0.06	0.39	6.33
Learning Content	0.30	0.04	0.32	7.50

(X3)				
Learning Assessment (X4)	0.42	0.05	0.41	8.40

According to the results of the regression analysis, the adjusted R 2 value of the model was 0.610, indicating that the four independent variables of learning motivation, learning style, learning content and learning assessment can explain 61% of the total variation in classroom learning quality. The significance level of each variable was less than 0.01, indicating that they had a significant positive effect on the quality of classroom learning.

According to Table 4.3, the standardized regression coefficient was 0.46, which contributed the most among the four variables, indicating that students' learning motivation had the most significant influence on learning quality in the class.

Table 4.4 Model Summary

R	R Square	Adjusted R Square	Standard Error
.785	.616	.610	0.36

A high level of learning motivation will encourage students to actively participate in learning and improve the classroom effect. The standardized regression coefficient of learning assessment (X4) is 0.41, indicating that scientific learning assessment plays an important role in improving learning quality. Diversified evaluation methods can not only detect students 'knowledge mastery, but also effectively motivate students' continuous learning. The standardized regression coefficients of learning style (X2) and learning content (X3) were 0.39 and 0.32, respectively, indicating that rich and diverse learning style and high-quality learning content also have a significant positive impact on improving the quality of classroom learning. The respective variables had a significant positive effect on the quality of classroom learning, among which the learning motivation had the most influence. By stimulating the students' learning motivation, enriching the learning style, improving the learning content and improving the assessment system, the classroom learning quality of medical students can be improved more effectively. The results of this study show that improving the quality of classroom learning needs to start from multiple dimensions, especially to stimulate students' learning motivation, optimize their evaluation methods and enrich their learning content.

4.5 Discussion

First, although most students believed that teachers would occasionally focus on their classroom performance, 28.8% indicated that the teacher never did, indicating that some students may have their motivation to learn suppressed, thus affecting learning motivation. Second, although most students spent between 5 and 15 hours on study, 12.6% spent less than 5 hours per week, potentially resulting to insufficient learning

depth and efficiency. In addition, extracurricular learning methods are relatively single, with online learning resources and academic lectures playing the majority, while the proportion of traditional textbook reading and group discussion is low, and experimental and practical operations are limited, which cannot meet the learning needs of different students and limit the learning effect. The limited integration of course content with clinical practice may lead to a disconnect between theoretical learning and practical application, thus affecting their clinical competence and professionalism. Finally, the current learning evaluation mainly focuses on the written test, and the lack of comprehensive consideration of students 'practical ability and clinical thinking may lead to students' insufficient performance in practice. It shows that Kunming Medical University still needs to make further efforts to improve the quality of classroom learning, especially in stimulating students' learning motivation, enriching learning methods and content, and strengthening the combination of practice.

The finding that highly motivated students often adopt more active learning styles suggests that stimulating student learning motivation is critical to improve learning outcomes. Schools and teachers should enhance students' intrinsic learning motivation by setting clear learning goals and providing incentives. At the same time, there is a strong correlation between learning content and learning assessment, indicating that rich and diverse learning contents can effectively improve students' ability to cope with complex learning assessment. Teachers should use diversified learning contents, such as multimedia, interactive teaching and case analysis, to make the evaluation easier to understand and master. Moreover, the study found a significant positive correlation between learning content and students 'learning style, indicating that teachers should constantly improve the design of learning materials in a more flexible and interactive way to promote students' interest and participation in learning. In general, improving the quality of learning needs to start from many aspects, including stimulating students' learning motivation, enriching learning content, improving evaluation methods and optimizing learning methods. Therefore, schools should strengthen teacher training, improve teachers' teaching ability and level, and provide students with more learning resources and support, so as to comprehensively improve the quality of learning.

Chapter 5 Conclusion and Recommendation

5.1 Conclusion

In this study, the questionnaire survey of medical students in Kunming Medical University explored the main factors affecting the quality of classroom learning and proposed corresponding improvement strategies. It is found that the four dimensions of learning motivation, learning style, learning content and learning assessment have a significant impact on the classroom learning quality. Students with high learning motivation are more inclined to adopt diversified learning methods, and diversified learning content and scientific and systematic learning assessment are particularly important to improve the quality of learning. Therefore, to improve the quality of classroom learning, students should comprehensively consider their learning motivation, learning style, learning content and learning assessment. Effective learning strategies should work together in these four aspects to achieve the best teaching results.

A series of improvement strategies based on the ADDIE model are proposed. First, research shows that the application of the ADDIE model in medical education effectively promotes the quality of classroom learning for medical students. By systematically integrating learning objectives, contents, methods and evaluation, the model provides a scientific teaching design framework, so that teachers can better meet the learning needs of students, so as to improve the learning effect. Secondly, diverse teaching methods were shown to actively promote students' learning style transformation and enhance their learning motivation and participation. By introducing rich teaching resources and innovative teaching methods, teachers can stimulate students' interest in learning, make them more active in the classroom, and further improve the quality of learning.

In conclusion, this study provides a theoretical basis and practical guidance for improving the quality of classroom learning among medical students, emphasizes the importance of educational reform and innovation, and aims to contribute to the sustainable development of medical education. Future studies could further explore the combined effects of different teaching methods and how to flexibly apply ADDIE models in different teaching settings to achieve a higher level of learning quality.

5.2 Recommendation

Based on the results of this study, the following suggestions are proposed to improve the quality of classroom learning of Kunming Medical University. First of all, schools and teachers should pay attention to stimulating students 'learning motivation, and enhance students' internal motivation through clear learning goals and appropriate incentive measures. At the same time, teachers should provide a variety of learning content, use multimedia, interactive learning and case analysis and other methods to make learning evaluation more vivid and interesting, improve students' interest in learning. Further, improving learning assessment is also the key to improve the quality of teaching. It is suggested that teachers introduce ADDIE model theory to promote

students' active learning and deep thinking. The ADDIE model includes five stages: analysis, design, development, implementation, and evaluation. Through this model, teachers can design more effectively the learning content and evaluation methods, ensuring that students can receive full support at every stage of learning. Schools should strengthen teacher training, enhance teachers' ability in learning evaluation, and provide more learning resources and support for students. In addition, a systematic learning evaluation and feedback mechanism should be established to timely understand the needs of students and the problems in learning, and make targeted improvements to ensure the continuous improvement of teaching quality.

5.2.1 Suggestions on Learning Motivation

(1) Set clear learning goals and career planning, and enhance internal motivation

In medical education, clear learning goals and career planning can significantly enhance students' intrinsic motivation. It is suggested that Kunming Medical University should provide career development planning courses to help students set long-term career goals and short-term study tasks. By setting specific, measurable learning goals, such as passing specific skills assessments or participating in research projects, students are able to have a clearer understanding of their learning direction. At the same time, schools should encourage students to participate in career-related activities, such as volunteer services, internships and academic competitions, which can give students a deeper understanding of the meaning of the medical career and enhance the purpose and motivation of learning. Clear learning goals and career planning can not only stimulate students' enthusiasm for learning, but also encourage them to maintain a positive attitude in the face of learning challenges.

(2) Provide rich learning resources and support to improve external motivation

External learning resources and support systems have an important influence on students' motivation for learning. Kunming Medical University should further enrich its learning resources, including medical literature in the library, courses on online learning platforms, and internship and scientific research opportunities. In addition, the university can also hold academic lectures, symposia and academic exchange activities to stimulate students' interest in medical research. Through these rich resources and support, students can feel the diversity and interest of learning, and enhance their sense of investment in classroom learning. Especially in the face of challenges and difficulties, a good support system can help students overcome setbacks and maintain learning motivation.

(3) Establish a positive learning atmosphere and cooperative culture to promote peer motivation

A positive learning atmosphere and a good cooperative culture can significantly improve students' learning motivation. Kunming Medical University can encourage the cooperative learning among students, and promote the communication and motivation among peers through the establishment of study groups, organizing academic discussions and team projects. In this interaction, students can share their learning

experience and encourage each other, so as to enhance their enthusiasm for learning. In addition, the university should hold regular academic activities, competitions and presentations to give students the opportunity to show their results and gain recognition and feedback. This peer-peer incentive mechanism can enhance the interest and motivation of learning, and help students to form a positive attitude towards learning.

5.2.2 Suggestions on Learning Styles

(1) Adopt active learning strategies to improve learning participation

At present, many students still rely on the traditional passive learning method, mainly through lectures and review after class to acquire knowledge. However, active learning strategies can significantly improve classroom engagement and learning outcomes. Students should be more active in classroom discussions, asking questions and interact with teachers to better understand what they have learned. Kunming Medical University can encourage students to think and participate actively by introducing interactive teaching modes, such as group discussion, classroom questioning and practical operation. This can not only stimulate students' interest in learning, but also enable students to deepen their understanding of knowledge in the discussion, so as to improve the quality of classroom learning.

(2) Combine various learning methods to meet the personalized learning needs

Because students have different learning styles and abilities, a single learning style is difficult to meet the needs of all students. In order to improve the quality of classroom learning, it is suggested that students should choose the most suitable learning methods according to their personal needs. For example, visual learners can enhance understanding by watching videos and charts, and hands-on learners can deepen memory by participating in experiments and simulated manipulations. Kunming Medical University can provide students with more learning resources and choices, such as online courses, laboratory simulation training and academic lectures, so that students can flexibly adjust their learning methods according to their own learning style. A variety of learning methods can effectively meet the personalized needs of students, and improve their learning efficiency and classroom participation.

5.2.3 Suggestions on Learning Content

(1) Optimize the difficulty and level of the course content, and enhance the interest in learning

At present, some courses are difficult and are beyond students' understanding level, leading to fatigue and frustration in the learning process, which affects the quality of classroom learning. Therefore, it is suggested to rationally the course content according to the students' learning stage and acceptance ability. Kunming Medical University can design a step by step curriculum system, starting from the basic knowledge, gradually deepen the difficulty of professional knowledge, so that students can gradually master complex medical concepts and skills. Through this design, students can maintain their enthusiasm and interest in the learning process, reduce the learning pressure caused by

the profound content, so as to effectively improve the classroom participation and learning effect.

(2) Strengthen the combination of course content and clinical practice to improve the practicability of learning

The ultimate goal of medical students 'learning is to apply theoretical knowledge to clinical practice. However, the current content of some courses emphasizes theory, and the practice and application links are relatively weak, which affects students' mastery and understanding of knowledge. In order to improve the quality of classroom learning, the courses of Kunming Medical University should strengthen the combination of theory and clinical practice. Students suggest that the school introduce more case discussion, clinical skills training and simulation operations into the curriculum to make the classroom content more close to the practical medical work. In this way, students can better understand and use the knowledge they learn in learning, and improve the practicality and practical ability of learning.

(3) Increase the diversity of teaching content to meet different learning needs

Students in Kunming Medical University have diverse backgrounds and different learning needs. The current course content is relatively unified, which cannot meet the personalized learning needs of all students, which makes it difficult for some students to benefit from it. In order to improve this problem, it is suggested to increase the diversity of the course content, including elective courses, special lectures and interdisciplinary courses, so that students can choose the learning content according to their own interests and development direction. For example, elective courses in public health and health management should be added to meet the learning needs of students in different fields. Through the flexible and diversified curriculum setting, students can better learn according to their own interests, and improve their learning initiative and classroom learning quality.

5.2.4 Suggestions for Learning Assessment

(1) Implement a diversified evaluation system to comprehensively measure students' ability

At present, the learning evaluation system of Kunming Medical University mainly focuses on the written test results, which is a single difficult evaluation method to fully reflect the students' practical ability, especially the practical operation and clinical thinking ability. In order to improve the quality of classroom learning, it is recommended to adopt diversified evaluation methods, including practical operation assessment, case discussion, teamwork performance, extracurricular activity participation and other evaluation indicators. Through this comprehensive evaluation system, students' clinical practice ability, teamwork ability and innovative thinking will be fully demonstrated and recognized, so as to avoid the learning evaluation is too limited to the theoretical examination. Diversified evaluation methods can encourage students to develop in an all-round way, so as to improve their learning effect.

(2) Increase the process evaluation to promote the continuous learning and progress

Most of the current learning evaluation focuses on the final examination or periodic examination, lacking of continuous supervision and feedback on the learning process. Students suggest that Kunming Medical University introduce process evaluation in the course, and regularly assess and give feedback on students' learning progress. For example, teachers can understand students' performance in the learning process through in-class test, group discussion, homework submission and other ways, and give personalized guidance and suggestions. This way can enable students to find out their own shortcomings in time, and gradually improve their learning strategies with the help of teachers, enhance the sense of classroom participation, and form a benign learning cycle. Process evaluation can not only help to improve the quality of learning in class, but also help students develop the habit of continuous learning.

(3) Provide personalized feedback to improve learning motivation

In the current evaluation system, students often can only get one total score or level, lacking in specific feedback information. This evaluation method is difficult to help students to clarify their own advantages and disadvantages, which affects their learning motivation and improvement direction. In order to improve the learning effect, it is suggested that Kunming Medical University should provide more detailed personalized feedback after the examination and evaluation, including the mastery of each knowledge point, the specific performance of practical skills and suggestions for improvement. Through personalized feedback, students can have a clear understanding of their own learning situation, clarify the direction of the next step, and gain the motivation for improvement. Personalized feedback mechanism will help to improve students' learning enthusiasm, thus improving the overall quality of classroom learning.

5.3 Further Study

Despite some meaningful findings in this study, there are some limitations. Further studies could further expand the sample range, increase the survey of other medical schools, and improve the universality of the research findings. In addition, teaching experiments and other methods can be combined to verify the practical effects of different learning strategies and provide a more scientific basis for further optimization of medical education. Further study should be done on the specific impact of learning content on students of different majors, and the formulation of more detailed and targeted learning strategies according to the characteristics of different disciplines and majors. At the same time, it is suggested that future research should pay attention to the application of information technology in medical education, and further improve the learning effect and students' learning experience through online learning platform and virtual reality technology. In conclusion, continuous exploration and research on methods and strategies to improve the quality of classroom learning will provide important support and guidance for the development of medical learning.

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Appendix

Improve the quality of classroom learning questionnaire survey

Dear students:

In order to better understand the current situation of classroom learning quality, and further improve the quality of teaching, we hereby carry out this questionnaire survey. Your participation is very important to us and the questionnaire data will be kept strictly confidential and used for academic research only. Thank you for your support and cooperation!

Part I: Personal basic information

1.Your gender

A. male and B. female

2.Your grade is

A. freshman
B. sophomore
C. junior
D. senior
E. Master

3.In general, in class, will the teacher pay attention to your class performance (being late and leaving early, sleeping, playing with your mobile phone, chatting, etc.) and remind you?

A. Never
B. Occasionally
C. Often

4.Your major is

A. preclinical medicine
B. clinical medicine
C. pharmacy
D. public health
E. other

5.Your average weekly self-study time (excluding class time)

A. for less than 5 hours
B. for 5-10 hours
C. Treatment for 10-15 hours
D. 15- -20 hours
E. For more than 20 hours

6.How do you usually study outside the classroom?

A. Reading the textbook
B. attended the academic lectures
C. Online learning resources
D. panel discussion

E. Experimental and practical operations

section two:

This questionnaire adopts Likert scale, 1 representative very disagree; 2 representative disagree; 3 representative general; 4 representative agree; 5 representative very agree, please choose the appropriate number and draw a tick below the corresponding value)

Dimension	Title	Very Disagree	Disagree	Same as	Agree	Very much Agree
Academic motivation	1. I have a strong interest in medical courses.	1	2	3	4	5
	2. I think learning medical knowledge is very important for my future career development.	1	2	3	4	5
	3. I actively participate in discussions and ask questions in class.	1	2	3	4	5
	4. I will spend extra time preparing and reviewing the medical course.	1	2	3	4	5
	5. I am satisfied with my performance in medical study.	1	2	3	4	5
Learning style	6. I am used to learning medical knowledge by reading textbooks and materials.	1	2	3	4	5
	7. I like to deepen my understanding of medical knowledge through group discussions.	1	2	3	4	5
	8. I often use Internet resources (such as videos and online courses) to assist my learning.	1	2	3	4	5
	9. I think practical operation is very important to master medical knowledge.	1	2	3	4	5
	10. I will make a detailed study plan and strictly implement it.	1	2	3	4	5
Learning content	11. The course content is rich and practical.	1	2	3	4	5

	12 The course content is able to reflect the latest medical research and development	1	2	3	4	5
	13. The course arrangement is reasonable and moderate difficulty.	1	2	3	4	5
	14. The course content is closely integrated with clinical practice	1	2	3	4	5
	15. I am satisfied with the overall arrangement of the course content.	1	2	3	4	5
Learning Assessment	16. I can adjust my learning strategy according to the difficulty of the course to ensure that I master the knowledge.	1	2	3	4	5
	17. I can timely adjust my study plan through the evaluation results.	1	2	3	4	5
	18. I think the evaluation methods in class (such as tests, exams, homework, etc.) can effectively reflect my understanding of the course content.	1	2	3	4	5
	19. I can use a variety of learning methods to improve my learning results.	1	2	3	4	5
	20. I continue to improve my learning methods and quality based on the feedback.	1	2	3	4	5
Quality of Classroom Learning	21. I think the classroom teaching has promoted my deep understanding of the course content.	1	2	3	4	5
	22. I got enough opportunities in class to express my views and questions.	1	2	3	4	5
	23. I think the learning resources (such as textbooks, handouts, etc.) provided in the class are enough to support my study	1	2	3	4	5

	24 I felt that the teachers showed their care and support for my learning needs in class	1	2	3	4	5
	25. My self-assessment of my classroom learning outcomes has helped me to better master my knowledge.	1	2	3	4	5