The Influencing Factors of Students' Learning Quality: A Case Study of Tianjin College, University of Science and Technology Beijing

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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

In the context of the connotation-oriented development of higher education, improving the quality of student learning has become a core concern for universities. Exploring the factors influencing learning quality is essential to optimizing teaching practices and cultivating high-quality talents that meet social needs.

The objectives of this study were: 1) to investigate the impact of students' self-learning ability on students' learning quality. 2) to investigate the impact of teachers' teaching quality on students' learning quality. 3) to investigate the impact of teachers' influence on students' learning quality.

This research employed a quantitative design using a questionnaire survey as the primary method, supplemented by relevant literature review. The study population comprised of students of Tianjin College, University of Science and Technology Beijing. A total of 400 questionnaires were distributed using simple random sampling, and 367 valid responses were collected. The instrument was a structured Likert-scale questionnaire covering three dimensions. Data were analyzed through reliability and validity testing, correlation analysis, and multiple regression analysis.

The findings demonstrated that all three factors had a significant positive impact on students' learning quality. Among them, students' self-learning ability exerted the strongest influence, followed by teachers' teaching quality, and teachers' influence. The results indicated that self-learning enhanced academic performance, knowledge internalization, and critical thinking, while high-quality teaching improved comprehension, engagement, and efficiency. Teachers' personal influence, though weaker, still contributed positively by shaping learning attitudes, motivation, and values.

The regression model explained 74.2% of the variance in students' learning quality, confirming its strong explanatory power.

The study concluded that student self-learning played the most decisive role in improving learning quality, supported by teaching quality and teacher influence. To enhance the overall effect, it is suggested that 1) To cultivate students' self-learning ability, it is necessary to integrate method guidance, build resource platforms, incorporate self-study outcome evaluations, and promote group improvement through study groups; 2) To enhance the teaching quality of teachers, they need to optimize the course content, explore diverse teaching methods, and dynamically adjust teaching. Schools should set up centers to provide support; 3) To enhance the influence of teacher education, teachers should care for students, guide their concepts, integrate with the cutting-edge of their disciplines, and at the same time create a good environment and build a trusting teacher-student relationship.

Keywords: student self-learning, teaching quality, teachers' influence, learning quality.

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HU YANGLIU

DECLARATION

I, Hu Yangliu, hereby declare that this Independent Study entitled "*The Influencing Factors of Students' Learning Quality: A Case Study of Tianjin College, University of Science and Technology Beijing*" is an original work and has never been submitted to any academic institution for a degree.

Hu Yangliu.

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Chapter 1 Introduction

1.1 Background of the Study

In the context of the connotation-oriented development of higher education, the improvement of students' learning quality has become a core issue in the field of education. In-depth exploration of the factors affecting students' learning quality is of great significance for optimizing educational practice and promoting high-quality development of education.

Students' self-learning ability is a key factor affecting learning quality. The research of Li et al. (2025) shows that there is room for improvement in the current situation of college students' self-learning ability, and the strength of self-learning ability directly affects their learning quality. Cao (2025) found through a meta-analysis of 46 empirical studies at home and abroad that in the digital age, multiple factors such as technical tools and learning motivation interact to affect college students' self-learning, which in turn affects the quality of learning.

Teachers' teaching quality is also closely related to the quality of students' learning. Taking Jiangxi University of Traditional Chinese Medicine as a case, Lu et al. (2025) pointed out that building a teaching development support system for college teachers and improving teachers' teaching quality and cultural literacy can effectively promote the improvement of students' learning quality. Li et al. (2025) emphasized that in private undergraduate colleges, improving the level of digital teaching and giving full play to the guiding role of teachers in digital teaching are crucial to improving students' learning quality.

In addition, Liu et al. (2024) studied the international academic influence of teachers in "double first-class" universities, revealing the impact of teachers' academic ability on students' academic vision and learning depth. Ai (2023) found through a study of "post-00s" normal school students that the excellent qualities of teachers, such as professional quality and humanistic care, can have a positive and far-reaching impact on students' learning quality.

1.2 Questions of the Study

The quality of student learning is affected by multiple factors. In the teaching practice of Tianjin College, University of Science and Technology Beijing, self-learning ability is the key internal driving force for knowledge internalization. The teaching of teachers determines the depth and breadth of knowledge transfer, and the influence of teachers shapes students' learning attitudes and goals from aspects such as

academic guidance and personal charm. This study is guided by the following questions:

1. Does students' self-learning ability affect students' learning quality?
2. Does teachers' teaching quality affect students' learning quality?
3. Does teachers' influence affect students' learning quality?

1.3 Objectives of the Study

This study aims to conduct an in-depth analysis of the mechanisms influencing student learning quality at Tianjin College, University of Science and Technology Beijing. By systematically investigating the intrinsic relationships between students' self-learning abilities, teaching quality, and the teachers' influence, it seeks to precisely identify key influencing factors and their pathways of action. The findings provide a scientific basis for optimizing teaching management, enhancing students' self-learning efficacy, and strengthening teaching staff's instructional capabilities and influence. This facilitates the development of more targeted and effective educational strategies, thereby making a comprehensive improvement in the college's talent cultivation quality.

1. To investigate the impact of students' self-learning ability on students' learning quality.
2. To investigate the impact of teachers' teaching quality on students' learning quality.
3. To investigate the impact of teachers' influence on students' learning quality.

1.4 Scope of the Study

This study took students of Tianjin College, University of Science and Technology Beijing as the research subjects, focusing on the factors affecting students' learning quality during their time at school. The study mainly revolved three core variables: students' self-learning ability, teachers' teaching quality, and teachers' influence on students. Through questionnaires, first-hand data from students of different majors and grades were collected to fully reflect the problems and advantages in current undergraduate education.

Based on the theory of effective teaching, this study reviewed and analyzed existing research results by reading relevant literature, aiming to deeply explore the key factors affecting the learning quality of undergraduate students, especially students' self-learning ability, teachers' teaching quality, and teachers' influence. The study hoped to clarify how these factors worked together on students' learning outcomes and then propose practical teaching improvement strategies to improve students' academic performance and professional ability but also promote the high-quality development of

higher education and cultivate high-quality talents that meet social needs.

1.5 Significance of the Study

1.5.1 Theoretical Significance

This study took the Tianjin College, University of Science and Technology Beijing as a case, focusing on the factors affecting students' learning quality, and systematically exploits the relationship between students' self-learning ability, teachers' teaching quality, and teachers' influence and learning quality. By introducing effective learning theory and constructivist learning theory, this study enriches the theoretical discussion on the formation mechanism of learning quality in higher education, especially incorporating "teacher factors" and "student subjective initiative" into the same analytical framework, which helps to deepen the understanding of the teaching interaction process.

1.5.2 Practical Significance

In the context of improving the quality of education in the new era, clarifying the key factors that affect students' learning quality is of great significance to the teaching reform of colleges and universities. The results of this study can help schools recognize the importance of improving students' independent learning ability and promote the innovation of teaching models; it can point out the direction for teachers to improve their teaching and humanistic qualities and help build a high-quality teaching staff. For Tianjin College, University of Science and Technology Beijing, this study provides empirical evidence and improvement ideas for formulating personalized teaching strategies, optimizing the curriculum system, and improving the overall teaching quality.

1.6 Definition of Key Terms

The core objective of this study is to apply effective teaching theories to deeply explore the key factors that have a significant impact on students' learning quality. The key terms involved in the research are clearly defined as follows:

1. Student Self-learning: Student self-learning refers to an autonomous and self-directed learning process in which students actively take responsibility for their own learning. It involves independently setting learning objectives, selecting appropriate learning resources and strategies, monitoring progress, evaluating outcomes, and engaging in continuous reflection.
2. Teaching Quality: Teaching quality refers to the overall effectiveness and

professional competence demonstrated by educators in promoting meaningful student learning. It involves not only the teacher's mastery of subject knowledge but also their pedagogical skills, instructional design, classroom management, and ability to motivate and engage learners.

3. Teachers' Influence: Teachers' influence refers to the impact that educators exert on students' academic performance, attitudes, behaviors, and overall personal development. It encompasses both direct instructional effects—including knowledge transmission, skill development, and classroom management—and indirect effects, including the shaping of students' motivation, values, confidence, and lifelong learning attitudes.

4. Students' Learning Quality: Students' learning quality refers to the degree to which students achieve meaningful, deep, and sustainable learning outcomes through their cognitive, emotional, and behavioral engagement in the learning process. It reflects not only the acquisition of knowledge and skills but also the development of critical thinking, creativity, problem-solving ability, and lifelong learning competence. High learning quality is characterized by active participation, intrinsic motivation, self-regulation, and the ability to apply knowledge in real-life contexts.

5. Theory of Effective Teaching: The theory of effective teaching refers to a conceptual framework that explains the principles, processes, and factors contributing to successful teaching and meaningful learning outcomes. It emphasizes the integration of pedagogical knowledge, instructional design, classroom management, student engagement, and reflective practice to optimize learning effectiveness. It draws upon multiple educational perspectives, including constructivism, humanism, and cognitive learning theories, to guide teachers in designing and implementing teaching practices that enhance both academic performance and holistic student development.

Chapter 2 Literature Review

2.1 Introduction

This chapter contains an in-depth analysis of effective teaching theory, systematically examining three key factors influencing student learning quality at Tianjin College, University of Science and Technology Beijing. Drawing upon cutting-edge academic research, it identifies these factors as: student self-learning ability, teaching quality, and teachers' influence.

Effective teaching theory provides an overall conceptual framework for understanding the interactive relationship among teaching-related factors and their impact on educational outcomes. This theory holds that effective teaching is the organic integration of teaching knowledge, curriculum design, classroom interaction and reflective practice, aiming to enhance students' learning outcomes and promote their all-round development. Under this framework, teaching quality, teachers' influence and students' autonomous learning are interrelated core elements, jointly constituting the foundation for the realization of effective teaching. Teaching quality is the core manifestation of effective teaching. High-quality teaching, through scientific instructional design, reasonable teaching strategies and good classroom management, transforms the principles of effective teaching theories into operational practices. Teacher influence is the mediating mechanism for effective teaching to function. Teachers influence students' learning attitudes and behaviors through methods such as knowledge imparting, emotional support, exemplary demonstration and motivating students to learn. This precisely embodies the concepts of "student-centeredness" and "promoting all-round development" in the theory of effective teaching. Student autonomous learning is the ultimate goal pursued in effective teaching. According to the theory of effective teaching, successful teaching should cultivate students' learning autonomy, critical thinking and self-regulation ability, enabling them to achieve self-orientation in the learning process. The three together form an interactive teaching system. Under the two-way influence of teachers and students, the quality of education and teaching effectiveness are continuously improved.

This thorough exploration not only establishes a robust theoretical framework for the present study but also provides scientific guidance for precisely analyzing the current state of student learning quality and identifying pathways for improvement. Building upon this foundation, the University may further refine empirical research into these three influencing factors. By enhancing the support system for student-centered learning, strengthening quality control over teaching practices, and leveraging the

positive influence of teaching staff, the institution can progressively overcome bottlenecks in the learning quality enhancement process. This approach will solidify the educational foundations for cultivating high caliber applied talents.

2.2 Theory of Effective Teaching

The theory of effective teaching, as a vital component of modern educational theory, emphasizes that instruction must adhere to established principles. Centered on the core objectives of ‘effective, efficient, beneficial,’ it seeks to achieve students' comprehensive development with minimal input (Wang, 2024). It requires teachers to undertake thorough preparatory work, deliver instruction through clear articulation and scientific organization, foster positive teacher-student relationships through high levels of enthusiasm, and employ diverse methods to stimulate student engagement. Concurrently, it stresses the importance of timely feedback and multifaceted assessment, focusing on both the learning process and its outcomes. This theory posits that effective classroom teaching is influenced by multiple factors: the teacher (pedagogical philosophy, professional competence, etc.), the student (learning motivation, cooperation level, etc.), and the school (teaching resources, institutional support, etc.). Only through the coordinated efforts of these three elements can teaching quality be optimized and instructional effectiveness enhanced. Some characteristics of effective teaching are as follows:

1) Student-Centered

The theory of effective teaching emphasizes that the core principle of student-centeredness is to regard learners as the true protagonists of the learning process rather than passive recipients of knowledge. The core definition of "effectiveness" in effective teaching is the specific progress or development made by students after a period of teaching, rather than whether the teacher has completed the teaching content or has a serious teaching attitude (Chen, 2017). The progress and development of students is the most important indicator for measuring effective teaching, and this view is supported by many studies (John et al., 2017). This principle clearly requires that instructional design and teaching should be closely integrated with students' cognitive patterns, learning needs and development potential, fully stimulating students' intrinsic learning motivation. Under the framework of effective teaching, its goal is not merely to impart knowledge, but to guide students to develop autonomous learning ability, possess a proactive learning attitude, and be able to independently identify and determine learning goals (Yin et al., 2025), which helps to transform from a passive attitude to a proactive "I want to learn" attitude. Therefore, it is of vital importance to enhance students' active participation and stay throughout the entire learning process. Teachers

must go beyond the limitations of the traditional single role of "guide, mentor, facilitator", and transform from the "leader" in the classroom to the "facilitator", "organizer", and "collaborator" of learning, truly returning the initiative of learning to students (Lu et al., 2024). This role transformation enables students to proactively set learning goals, choose learning methods, and standardize the learning process. Through cooperative exploration with peers and interactive communication with teachers, they gradually learn to be responsible for their own learning and eventually achieve efficient and sustainable learning outcomes.

2) Well-Structured and Comprehensive

The core principle of effective teaching theory emphasizes a "well-structured, systematic and comprehensive" approach. Fundamentally, this requires the establishment of a logically rigorous teaching system where all elements work in concert, rather than merely piecing together fragmented teaching practices. This feature clearly requires its application in key links such as the teaching process, resource allocation, faculty development and evaluation system, ensuring that all links work in synergy around the talent cultivation goals (Zhang, 2025), guaranteeing the continuity and integrity of the teaching process, and providing educators with a clear framework to offer high-quality teaching.

Under the framework of effective teaching, first, based on the curriculum standards and the development stage of students, it is necessary to establish stratified, clear, measurable and evaluable systematic teaching objectives (such as the combination of process assessment and multiple evaluations) (Qu et al., 2025). Then, these goals guide the selection of logically progressive teaching content and match it with flexible and adaptable teaching methods. As Kuijpers, Meijers, and Witse (2024) emphasized, a systematic teaching framework requires that teaching objectives, content, methods, and evaluations form an interdependent structure where each element dynamically supports the others to enhance overall teaching effectiveness. Ultimately, a multi-dimensional and multi-faceted teaching evaluation system should be established, forming a closed-loop structure where "objectives–content–methods–evaluation" are interrelated. Therefore, enhancing the structural integrity and systematism of the teaching framework is the core lever for improving teaching quality. Educators must transcend the limitations of traditional teaching, which places content delivery above framework construction. They should evolve from decentralized implementers of teaching activities to designers of systems and controllers of the whole. By scientifically constructing a teaching framework, the optimal allocation of teaching elements can be achieved (Kuijpers et al., 2024).

This systematic approach enables teachers to more precisely identify key teaching challenges, rationally allocate teaching time, and effectively connect new knowledge

with existing knowledge. In this holistic teaching practice, educators gradually enhance their capabilities in teaching planning, classroom management, and reflective evaluation. Moreover, effective teaching theory must also account for individual learner differences. Nuthall (2001) proposed that "every generalization we make and every conclusion we draw must be applicable to every individual," urging teachers to adjust teaching based on students' individual differences and avoid falling into rigid "teaching rituals." This aligns with findings from Rosário et al. (2014), who demonstrated that teachers' adaptive teaching approaches significantly improve student engagement and perceived teaching quality. Similarly, English Teaching & Learning (2021) highlighted the importance of adopting a complex, dynamic, and socio-ecological view of learner diversity, suggesting that teaching systems must remain flexible enough to accommodate individual variation while maintaining systematic integrity.

Ultimately, this comprehensive and adaptive system continuously improves teaching quality and maximizes instructional effectiveness.

3) Teacher-Student Interaction and Feedback

The theory of effective teaching advocates "emphasizing interaction and feedback between teachers and students," and its core principle is to establish a dynamic and two-way teaching communication mechanism, rather than a static teaching model where teachers unidirectionally output and students passively accept. This feature clearly requires that information exchange, intellectual participation and immediate adjustment between teachers and students be strengthened in the teaching process. The theory holds that the interaction between teachers and students should be based on mutual respect and care, regarding teaching as an "art" and emphasizing the significance of teachers' sensitivity, imagination and care for good teaching. Eisner (2002) proposed that "good teaching depends on sensitivity and imagination, pursues surprise, benefits from care, and is essentially an artistic activity", which provides theoretical support for the "artistry" and "emotionality" of teacher-student interaction.

Through efficient interactive feedback, the core role of teachers in teaching is highlighted, providing fundamental support for improving teaching effectiveness. Within the framework of effective teaching, the implementation of interaction and feedback between teachers and students mainly relies on the precise guiding role of teachers. This guiding approach directly determines the depth of interaction and the quality of student participation. Meanwhile, a teacher's ability to manage the classroom and create an atmosphere is an important guarantee for interactive feedback. By creating an environment of mutual respect and designing attractive interactive forms, teachers can effectively alleviate students' reservations about speaking, thereby enhancing their enthusiasm for participation and learning motivation.

More importantly, a teacher's ability to provide feedback and adjust is at the core

of realizing the value of interaction: Through classroom observation, question-and-answer communication, and homework feedback, teachers must identify students' learning difficulties and cognitive biases. Then, they should promptly adjust the teaching pace, improve teaching methods, and provide personalized guidance based on individual needs. The Power of Feedback model by Hattie & Timperley (2007) shows that effective feedback answers three core questions: Where am I going? How am I doing? Where to next? This feedback cycle helps guide students' learning and enables teachers to adjust instruction in real time.

Similarly, Brookhart (2007) stresses that feedback must be specific, actionable, timely and related to clear goals — feedback that fits the student's current level of performance and pushes them forward. Black & Wiliam's seminar (1998) on formative assessment also underlines that students should receive feedback that helps them identify their current position relative to learning goals, enabling adjustment of both teacher instruction and student strategies.

Recent empirical studies support these theoretical claims. For instance, research into teacher-student interaction in online learning (Sun et al., 2022) demonstrates that high levels of interaction, mediated through positive psychological atmosphere and learning engagement, significantly improve learning outcomes. Also, in studies of L2 learners (Cheng & Liu, 2022), both low- and high-proficiency students' behavioral, cognitive, and affective engagement with written feedback were shown to influence their revisions, motivation, and ultimately achievement. Furthermore, literature on higher education feedback (Haughney, 2020) reveals that while many educators recognize the importance of feedback, there are gaps in how consistently feedback is specific, timely, and actionable — meaning that implementation quality deeply affects effectiveness.

Therefore, the quality of interaction and feedback between teachers and students fundamentally depends on the teacher's ability to exert influence. Educators must go beyond the traditional teaching model of "teaching taking precedence over interaction" and transform from "knowledge disseminators" to "interaction designers", "feedback regulators" and "atmosphere cultivators". Through guidance, management and adaptation, the multi-dimensional influence is systematically exerted. The feedback from teachers and students becomes the true bridge connecting teaching and learning, ultimately achieving a dual improvement in teaching accuracy and effectiveness (Gurney, 2007).

2.3 Student Self-Learning Ability

Self-learning is the independent behavior that students actively take to achieve

their learning goals. Its core feature lies in its intentional and conscious nature - different from unconscious learning habits, students need to regulate the learning process through active planning and deliberate execution (Dowell & Small, 2011). Many studies have shown that students' autonomous learning ability has a significant positive impact on their learning quality. This conclusion has been widely verified in different educational backgrounds, subject areas and student groups. Chen (2025) pointed out in a study on strategies to improve college students' autonomous learning ability that students with strong autonomous learning ability can more effectively plan their learning time and choose learning methods, thereby significantly improving their learning efficiency and knowledge mastery, which is directly related to the optimization of learning quality. Zhang (2025) further demonstrated in research conducted within a digital context that when students are empowered to autonomously integrate learning resources and regulate their learning processes through digital technologies, their information processing capabilities and depth of learning significantly improve. This self-learning model provides a technology-enabled pathway for enhancing learning quality.

In the specific field of disciplines, Feng and Qi (2025) found through a review of literature from 2004 to 2024 that students with strong English autonomous learning ability performed better in language application proficiency and cross-cultural communication skills, confirming the positive role of autonomous learning in the acquisition of professional knowledge. Zhang (2024), using university English teaching as an example, similarly highlighted that cultivating autonomous learning abilities fosters students' critical thinking and proactive inquiry, elevating learning quality from mere knowledge memorization to application and innovation. Furthermore, Yang's (2025) research on university incentive mechanisms demonstrates that institutional designs stimulating students' intrinsic motivation for self-directed learning encourage greater cognitive resource investment, thereby establishing a virtuous learning cycle that ultimately enhances academic performance.

Research on special groups also supports this conclusion. Ma (2025) found that the online self-learning ability of undergraduate students in public security colleges is positively correlated with their mastery of professional skills. The stronger the self-learning ability, the more they can adapt to the practical learning needs of police knowledge. Chen (2025) found that tailored self-directed learning strategies effectively enhanced academic outcomes in specialized courses for Tibetan students at higher vocational institutions, narrowing intergroup learning disparities. Hou et al. (2024) similarly observed among sports science undergraduates that students with higher self-directed learning capacity demonstrated superior performance in motor skill acquisition and training program implementation, further corroborating self-directed learning's role

in enhancing practical learning quality.

Nguyen (2020) pointed out that students with stronger self-learning abilities are more likely to proactively apply efficient learning strategies (such as deep learning and reflective evaluation), and reasonably regulate the learning process (such as adjusting time allocation and optimizing learning methods), thereby better achieving learning goals. Conversely, students with weak self-learning abilities tend to be passive in their studies, find it difficult to handle complex learning tasks, and thus have poor learning outcomes.

Despite variations in research subjects and contexts, these studies consistently demonstrate that self-learning abilities exert profound and sustained positive impacts on learning quality through pathways such as optimizing learning strategies, enhancing learning motivation, and facilitating resource integration. This conclusion provides robust theoretical grounding for cultivating student autonomy and enhancing teaching effectiveness in educational practice.

2.4 Teaching Quality

Teachers' teaching quality not only directly affects students' current cognitive skills, but also indirectly affects students' academic continuity, thus acting on long-term learning quality (Hanushek & Woßmann, 2007). Many studies from different perspectives and disciplines have fully confirmed that teachers' teaching quality has a positive and significant positive impact on students' learning quality. In the field of engineering education, Wang et al. (2025) took the circuit principal course of Hefei University as an example and carried out teaching reform exploration and practice under the background of engineering education certification. They found that by improving teaching methods and optimizing course design, teachers can significantly improve students' mastery of professional knowledge and application ability, thereby improving learning quality.

In the field of physical education, Chen (2025) demonstrated through research on university martial arts courses that improvements in teaching approaches and methodologies, such as more scientifically demonstrated movements and more rational training arrangements, can effectively enhance students' learning interest and skill acquisition. This plays a crucial role in elevating teaching quality and promoting student learning outcomes.

Chen and Liu (2025), using Dalian University as a case study, proposed a 'six-mechanism' framework to advance the optimization and upgrading of teaching quality assurance systems in applied undergraduate institutions. Enhancing teaching standards is identified as a pivotal component, as high-caliber instruction facilitates students'

mastery of professional knowledge and skills, strengthens their practical abilities, and consequently exerts a positive influence on learning outcomes. Ma (2025), in her study on management accounting courses in private universities within the digital and intelligent era, indicated that when teaching staff actively explore pathways to enhance teaching quality and integrate digital and intelligent technologies into the teaching process, students can better adapt to industry development demands and improve their learning quality.

Yang et al. (2024) found through a comparative analysis of the teaching supervision system of Chinese and Thai universities from a cross-cultural perspective that effective teaching supervision helps to improve teachers' teaching level, thereby promoting the improvement of students' learning quality. Chen and Kang (2024) also evaluated the teaching quality of MOOC online courses in Chinese universities based on text mining, showing that teachers' teaching design, teaching interaction and other teaching quality factors are closely related to the effect and quality of students' online learning.

The caliber of teaching practice, as evidenced through course design, pedagogical approaches, and classroom interaction, tangibly influences the quality of student learning. It plays a pivotal role in students' acquisition of knowledge, development of skills, and enhancement of overall competence.

2.5 Teachers' Influence

As a core variable in the education process, teacher influence has a multi-dimensional and deep positive impact on students' learning quality. Teachers have a profound influence on students through their own behavioral demonstration and targeted guidance. Especially for students who will become teachers in the future, this "passing on, helping and guiding" role is particularly crucial (Cotnoir et al., 2014). Teachers' influence has a dual mechanism of direct and indirect influence. The direct influence is manifested in teachers' attitudes, words, body language, emotional states and personal demonstrations (such as fairness and responsibility). Indirect influences are achieved through mediating factors such as families, teaching committees, parent committees, and student groups (Mălureanu & Enachi-Vasluianu, 2021). Lei et al. (2022) used excellent teachers in the minds of private college students as samples and found that teachers with high teaching influence often significantly improve students' classroom participation and knowledge absorption efficiency by optimizing teaching design and strengthening teacher-student interaction. This influence is directly converted into improved learning quality. Sun (2021) further revealed in their master's research that the synergistic mechanism formed by professional competence, teaching

enthusiasm, and personal charisma of high-impact teachers in private universities not only stimulates students' learning motivation but also guides them in constructing systematic knowledge frameworks, thereby exerting a sustained positive influence on learning outcomes.

From the perspective of educational philosophy and academic influence, Chen and Li (2025) conducted a bibliometric analysis of Palmer's Teaching Courage. They indicated that teachers' profound understanding of education's essence and their personal growth can translate into emotional resonance and intellectual inspiration within the classroom. This influence, rooted in intrinsic motivation, can prompt students to shift from passive reception to active inquiry, thereby enhancing the depth and quality of learning. In the dimension of personality influence, Zhu and Chen (2024) conducted a study on teachers of ideological and political courses and found that the personality influence of teachers, which is composed of moral demonstration, emotional care and value guidance, can indirectly promote students' learning engagement and knowledge internalization by shaping their learning beliefs and cognitive identity, especially playing a key role in value shaping and critical thinking cultivation.

Yao et al. (2023) conducted a comprehensive analysis and found that the educational influence of college teachers is the integrated effect of factors such as teaching ability, academic literacy, and teacher-student relationship. When teachers establish academic authority through professional knowledge imparting, build trust relationships through emotional support, and provide method support through learning guidance, students' learning quality will show significant improvement in multiple aspects such as knowledge mastery, skill application and literacy improvement.

The influence of teachers is not a singular-dimensional effect, but rather a multifaceted process that positively drives student learning quality through diverse pathways such as teaching practice, personal exemplification, and academic leadership. This conclusion provides crucial evidence for enhancing teachers' professional development and influence within educational practice.

2.6 Students' Learning Quality

The improvement of students' learning quality involves multiple levels. Chen et al. (2025) proposed a 'four-stage, five-dimensional integrated' evaluation model. By combining formative and summative assessments, this framework provides a structured approach for evaluating learning quality in specialized courses such as 'In Vitro Diagnostic Marketing', emphasizing the guiding role of evaluation systems in learning outcomes. Wang (2025), adopting a psychological education perspective, elucidated the

intrinsic mechanisms through which psychological factors—such as learning motivation and emotional regulation—influence academic quality. The study indicated that optimizing psychological support pathways can indirectly enhance quality by fostering greater learning resilience. Wang et al. (2025) constructed a learning quality evaluation model including cognitive investment, skill acquisition, emotional experience and other dimensions based on the analytic hierarchy process and an empirical survey of 3015 college students, proving that multi-dimensional evaluation can more accurately reflect the complex connotation of learning quality. Gu (2025) examined the enabling effects of artificial intelligence technology on learning quality, noting that AI serves as a vital engine for promoting students' holistic development and achieving high-quality learning through means such as personalized learning pathway recommendations and cognitive diagnostics. Zhang (2025) emphasized the importance of guiding students to master metacognitive strategies and build autonomous learning models in classroom teaching and proposed to fundamentally promote the systematic improvement of learning quality by cultivating students' ability to learn.

2.7 Introduction to Tianjin College, University of Science and Technology Beijing

Tianjin College, University of Science and Technology Beijing was established in 2005 and is situated in the picturesque Baodi District of Tianjin, on the shores of the Bohai Sea. Leveraging the superior educational resources of the University of Science and Technology Beijing, the College boasts fully equipped modern teaching facilities, advanced experimental and practical training centers, and a well-stocked library. Upholding the educational philosophy of ‘cultivating virtue and fostering talent, creating personalized pathways to success for students, it actively implements an integrated teaching model combining ‘theory and practice’ while enforcing comprehensive standardized management measures. This aligns with the trend in New Liberal Arts education emphasizing arts-technology integration and collaborative curriculum innovation to cultivate applied talents. For example, Zheng et al. (2022) found that non-government colleges under the New Liberal Arts framework benefit from integrating art and science disciplines to produce graduates with professional quality, innovation, and practical ability.

The institution maintains a highly qualified and experienced teaching faculty, appointing numerous renowned industry experts and academic leaders as subject heads. The teaching staff exhibits a balanced age structure and well-established succession planning. Among them, 42 individuals have been honored with provincial or

ministerial-level awards for excellence in teaching, distinguished teaching, or teaching achievements, while 75 have been recognized as university-level outstanding subject teachers or key faculty members, providing robust assurance for high-quality instruction. In curriculum design, the College also reflects best practices such as those studied by Zhang et al. (2023), who emphasized innovative curriculum system reform in art design majors: integrating liberal arts courses, enhancing practical components, and aligning curriculum with emerging technology and market demands.

In recent years, the college has prioritized holistic student development, particularly integrating aesthetic education with academic disciplines. A comprehensive arts center has been established, combining teaching, training, and performance facilities. Fifteen specialized art modules, including Music Performance, visual communication design, and drama and film literature. This not only enriches students' extracurricular cultural lives but also establishes a ‘specialization + arts’ composite talent cultivation system. It effectively promotes students' all-round development, striving to cultivate new era applied talents who possess professional expertise, artistic cultivation, and innovative spirit.

2.8 Conceptual Framework

Guided by effective teaching theory, this study aims to explore the factors influencing student learning quality at Tianjin College, University of Science and Technology Beijing, and to construct an analytical framework for understanding learning quality in undergraduate institutions. Through literature analysis and comprehensive research, it was found that student self-learning ability, teaching quality, and teachers’ influence are the primary factors affecting learning quality. Consequently, as illustrated in Figure 2.1, the theoretical framework of this study focuses on these three dimensions, investigating how they collectively impact student learning quality. This research seeks to provide theoretical underpinnings and practical guidance for enhancing the learning quality of students at this institution.

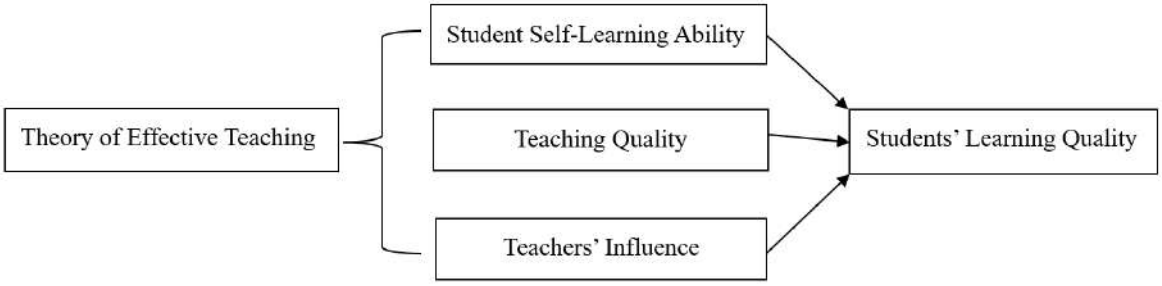

Figure 2.1 Conceptual Framework

Chapter 3 Research Methodology

3.1 Research Design

This study employed a questionnaire survey approach, supplemented by relevant literature, to conduct an investigation into factors influencing student learning quality. Students were invited to rate each influencing factor based on their personal perceptions, utilizing a five point Likert scale. The scoring criteria were as follows: 5 points indicated ‘Strongly Agree’, 4 points signified ‘Agree’, 3 points represented ‘Neutral’ or ‘Undecided’, 2 points denoted “Disagree”, and 1 point signified ‘Strongly Disagree’. This questionnaire aimed to comprehensively understand students' subjective perceptions of various factors affecting learning quality, thereby providing data support and theoretical foundations for optimizing and refining future teaching strategies.

3.2 Population and Sample

To facilitate data collection, ensure that the sample can fully represent the entire school, and obtain more representative and reliable survey results, the research subjects of this study were students of Tianjin College, University of Science and Technology Beijing. The sample size was set at 400 students, and 367 questionnaires were effectively collected. The survey period was from November 21, 2024, to June 10, 2025. The sample selection covered different grades and different majors to ensure the representativeness and diversity of the sample. The survey used simple random sampling to ensure that students from all grades and majors had the opportunity to participate in the survey.

3.3 Hypothesis

Learning quality is influenced by both internal and external factors. Drawing upon effective teaching theory, this study examines three key variables—students' self-learning ability, teaching quality, and teachers' influence—to explore their impact mechanisms on learning quality, thereby providing theoretical foundations for higher education teaching practices.

H1: Students' self-learning ability has a significant positive impact on students’ learning quality.

H2: Teachers' teaching quality has a significant positive impact on students' learning quality.

H3: Teachers' influence has a significant positive impact on students' learning

quality.

3.4 Research Instrument

This study employed a structured questionnaire as the primary data collection instrument to systematically evaluate factors influencing student learning quality. The questionnaire design was grounded in relevant theoretical frameworks and literature reviews, ensuring coverage of key dimensions including student self-learning ability, teaching quality, and teachers' influence.

Table 3.1 Questionnaire Items

Dimension	Item
Student Self-Learning Ability	1. Based on the course objectives and one's own situation, independently formulating a clear study plan and strictly adhering to it can improve academic performance.
	2. During the learning process, actively seeking out and rationally utilizing diverse learning resources (such as books, online courses, academic papers, etc.) can promote learning.
	3. When confronted with dull or challenging learning content, maintaining enthusiasm for learning and actively overcoming the fear of difficulties is conducive to academic progress.
	4. Summarizing learning methods that suit oneself, such as memory techniques and note-taking organization methods, and applying them flexibly can help improve academic performance.
	5. When learning new knowledge, actively thinking about its connection with existing knowledge and building a knowledge system can quickly clarify the knowledge context.
	6. Regularly assessing one's own learning outcomes and promptly adjusting learning strategies and progress based on the assessment results can enhance learning efficiency.
	7. Without external supervision, voluntarily completing learning tasks such as previewing and reviewing can better enhance the mastery of knowledge.
	8. When encountering learning problems, proactively

	solving them through various means such as group discussions, consulting materials, and seeking advice from others can rapidly improve academic performance.
Teaching Quality	1. The teacher's course content design is systematic and coherent, and the explanation of knowledge points is logical and clear, which is convenient for me to understand and master.
	2. The teacher adopted a variety of teaching methods (such as case analysis, group cooperation, experimental demonstration, etc.), effectively enhancing my interest in learning and participation.
	3. The homework and test content assigned by the teacher can precisely match the teaching objectives, helping me consolidate knowledge and enhance my application ability.
	4. The teacher was able to promptly answer my questions in class and provide in-depth yet easy-to-understand secondary explanations of complex knowledge points.
	5. Teachers will dynamically adjust the teaching pace based on students' feedback in class and their homework to ensure a reasonable teaching rhythm.
	6. The learning materials provided by the teacher (such as courseware, extended reading, etc.) are rich and practical, which have a great auxiliary effect on my study.
	7. Teachers in the classroom focus on guiding students to think critically and cultivating my independent thinking ability.
	8. The teacher has clear assessment standards for the course, and the evaluation process is fair and impartial, which can accurately reflect my learning outcomes.
Teachers' Influence	1. The professional attitude and noble character of the teacher, who leads by example, inspire me to approach my studies with a more serious attitude.
	2. The teacher's love and passion for the subject have kindled my strong interest and desire to explore it.
	3. The learning experiences and growth stories shared by the teacher have enabled me to master more efficient learning methods and strategies.

	4. The affirmation and encouragement given by the teacher have greatly enhanced my confidence in learning and my courage to overcome difficulties.
	5. The inclusive and open classroom atmosphere created by the teacher makes me more willing to express my viewpoints and ideas in the learning process.
	6. The teacher guided me to establish correct learning goals and values, making me clear about the significance and direction of my studies.
	7. The care from teachers in both my studies and life has helped me relieve the pressure of learning and maintain a good learning state.
Students' Learning Quality	1. Flexibly applying the learned knowledge to new problem situations can solve the subject-related problems encountered in practice.
	2. Through learning, critical thinking skills are enhanced, enabling one to conduct reasonable analysis and judgment on disciplinary viewpoints or information.
	3. Maintain a high level of enthusiasm for the subject being studied and be willing to take the initiative to spend time exploring the extended content related to the subject.
	4. During the learning process, one can clearly perceive their progress and improvement in terms of subject knowledge reserves or skill mastery.
	5. Be able to accurately grasp the internal logic of subject knowledge and construct a systematic framework of subject knowledge.
	6. When facing complex learning tasks, one can effectively plan the learning steps, complete them efficiently and meet the task requirements.
	7. Learning achievements are not only reflected in scores, but also in obvious gains in practical applications or innovative thinking related to the subject.
	8. I am satisfied with my current learning status and achievements and believe that I have reached the learning quality standards I set for myself.

3.5 Reliability and Validity Analysis of the Scale

3.5.1 Questionnaire Reliability Analysis

Reliability analysis, as a key method for assessing questionnaire reliability, aims to examine the stability and consistency of data. This study employed the reliability analysis module within SPSS 26.0 software, utilizing Cronbach's Alpha coefficient as the core evaluation metric. A higher Cronbach's Alpha coefficient indicates greater stability and consistency in test results, thereby signifying stronger data reliability. According to conventional academic standards, an α coefficient exceeding 0.8 for a measurement dimension indicates excellent internal consistency for that variable. Values between 0.7 and 0.8 denote good internal consistency, while those within the 0.6 to 0.7 range are considered acceptable. These threshold interpretations are aligned with what Taber (2018) reported, where values above 0.7 are commonly considered acceptable, and values above 0.8 good to excellent in the context of science education instrument development.

Table 3.2 Reliability Analysis

Factor	Number of Items	Cronbach Alpha
Student Self-Learning Ability	8	0.892
Teaching Quality	8	0.876
Teachers' Influence	7	0.851
Students' Learning Quality	8	0.883
Overall Questionnaire	31	0.921

Based on the results of this reliability test, the overall Cronbach's Alpha coefficient of the scale reached 0.921, far exceeding the good standard of 0.8. Moreover, the Cronbach's Alpha coefficients of each dimension: student self-learning ability, teaching quality, teachers' influence and students' learning quality were 0.892, 0.876, 0.851 and 0.883 respectively, all significantly higher than 0.8. This fully demonstrates that the questionnaire has extremely high reliability in data collection and measurement dimensions. The collected data are stable and have good internal consistency, which can provide solid data support for subsequent research.

3.5.2 Questionnaire Validity Analysis

Validity testing is an important means to assess whether a questionnaire can accurately reflect the research objective. Its core lies in verifying the degree of alignment between the questionnaire data and the research purpose, that is, determining

whether the questionnaire can effectively measure the content to be explored. In this study, the validity analysis was conducted by combining the KMO (Kaiser-Meyer-Olkin) test with the Bartlett sphericity test. Among them, the KMO value is used to measure the partial correlation between variables and is a key indicator for determining whether the scale is suitable for factor analysis.

Table 3.3 Validity Analysis

KMO and Bartlett's Test		
KMO Sampling Suitability Measure		0.927
Bartlett's Test of Sphericity	Approximate Chi-Square	4582.637
	Degrees of Freedom	253
	Significance	0.000 (p < .001)

According to academic conventional standards, when the KMO value is greater than 0.9, it indicates that the correlation between variables is extremely strong, and the scale validity is excellent. If the KMO value is between 0.8 and 0.9, it indicates good validity. A range of 0.7 to 0.8 is considered medium, 0.6 to 0.7 is acceptable, and a range below 0.6 indicates poor validity. The results of this test show that the KMO value of the scale is 0.927, significantly higher than the excellent threshold of 0.9. Meanwhile, the significance level of the Bartlett's sphericity test is $p<0.001$, rejecting the null hypothesis that "variables are independent of each other", further confirming the significant correlation among the variables. This indicates that the questionnaire can accurately measure the content required for the research. The data are highly consistent with the research purpose and has good structural validity, which can be effectively used for subsequent data analysis and theoretical exploration. This judgment method conforms to the commonly used criteria in questionnaire reliability and validity studies (Nazir et al. 2021), providing stronger theoretical support for the interpretation of the KMO interval and the threshold for significance of the Bartlett test.

3.6 Data Collection

This study collected data through questionnaires, which were designed to follow the principles of science and systematicity, and anonymization was used in the data collection process to ensure the privacy of the respondents and enhance the authenticity and reliability of the answers. A total of 400 questionnaires were distributed, and 367 valid questionnaires were recovered, with a valid questionnaire recovery rate of 91.75%.

3.7 Data Analysis

Data analysis is the process of processing and interpreting vast amounts of collected data through statistical analysis, extracting meaningful insights and forming research conclusions. Its core characteristic lies in achieving deep data mining through statistical methodologies. The data analysis methods employed in this study encompass the following dimensions: Firstly, reliability and validity analyses were conducted to verify the reliability and validity of questionnaire data, ensuring the scientific rigor of the measurement instruments. Secondly, correlation analysis was utilized to investigate the degree and direction of association between variables, revealing underlying patterns of correlation. Finally, regression analysis was applied to construct causal prediction models between variables, further elucidating the influence mechanisms of independent variables on dependent variables, thereby providing quantitative support for research hypotheses.

Chapter 4 Findings

4.1 Introduction

This chapter presents the correlation and regression analyses using survey data to validate the impact of various factors on student learning quality. The findings from this data analysis enable the research team to gain deeper insights into the interactions between different factors and their respective contributions to student learning quality. Through this validation process, more targeted recommendations and improvement directions are provided for the future teaching work at Tianjin College, University of Science and Technology Beijing, thereby further enhancing the learning quality of its students.

4.2 Demographics of Participants

The sample for this study comprised 367 enrolled students of Tianjin College, University of Science and Technology Beijing, with demographic characteristics including gender, age, and year of study. To ensure research compliance and ethical standards, stringent privacy protection and confidentiality measures were implemented for participant data, which also served as a crucial basis for understanding participants' background characteristics.

Table 4.1 Demographics of Participants

Items	Category	Number	Percentage (%)
Gender	Boy	175	47.7%
	Girl	192	52.3%
Age	19-20 years old	82	22.3%
	20-21 years old	87	23.7%
	21-22 years old	95	25.9%
	22-23 years old	103	28.1%
Grade	Grade 1	90	24.5%
	Grade 2	93	25.3%
	Grade 3	89	24.3%
	Grade 4	95	25.9%

In terms of gender, there are 175 males, accounting for 47.7%, and 192 females, accounting for 52.3%. The ratio of males to females is relatively balanced, ensuring fairness in gender factors. In terms of age distribution, the sample covers students of all

ages in the college. Among them, there are 82 students aged 19-20, accounting for 22.3%; 87 students aged 20-21, accounting for 23.7%; 95 students aged 21-22, accounting for 25.9%; and 103 students aged 22-23, accounting for 28.1%. From the perspective of grade distribution, the sample also covers students from the four grades of university. Among them, there are 90 freshmen, accounting for 24.5%; 93 sophomores, accounting for 25.3%; 89 juniors, accounting for 24.3%; and 95 seniors, accounting for 25.9%. The demographic data are helpful for a comprehensive analysis of students of different age groups and grades and their impact on learning quality.

4.3 Descriptive Statistics of Variables

4.3.1 Student Self-Learning Ability

Table 4.2 Student Self-Learning Ability

Item	Average	Standard Deviation
Based on the course objectives and one's own situation, independently formulating a clear study plan and strictly adhering to it can improve academic performance.	4.30	0.819
During the learning process, actively seeking out and rationally utilizing diverse learning resources (such as books, online courses, academic papers, etc.) can promote learning.	4.26	0.818
When confronted with dull or challenging learning content, maintaining enthusiasm for learning and actively overcoming the fear of difficulties is conducive to academic progress.	4.22	0.807
Summarizing learning methods that suit oneself, such as memory techniques and note-taking organization methods, and applying them flexibly can help improve academic performance.	4.32	0.826
When learning new knowledge, actively thinking about its connection with existing knowledge and building a knowledge system can quickly clarify the knowledge context.	4.27	0.812
Regularly assessing one's own learning outcomes and promptly adjusting learning strategies and progress based on the assessment results can	4.31	0.824

enhance learning efficiency.		
Without external supervision, voluntarily completing learning tasks such as previewing and reviewing can better enhance the mastery of knowledge.	4.28	0.820
When encountering learning problems, proactively solving them through various means such as group discussions, consulting materials, and seeking advice from others can rapidly improve academic performance.	4.32	0.827

Based on the data from the eight items, it can be seen that students hold a highly recognized attitude towards the role of each core dimension of self-learning ability in enhancing learning outcomes. In terms of the average score, the average score of all items ranged from 4.22 to 4.32, all falling within the "relatively consistent" to "very consistent" range of the 5-point Likert scale. Among them, learning methods had the highest degree of recognition (with an average of 4.32 for both). The recognition of overcoming emotions and maintaining enthusiasm for learning is relatively slightly lower but still reaches 4.22, overall demonstrating an affirmation of the value of the entire process of autonomous learning.

From the perspective of standard deviation, the standard deviations of each item range from 0.807 to 0.827, all of which are relatively small, indicating that the cognitive differences among different students regarding the role of each dimension are extremely small, and the group consensus is very high. This result fully demonstrates that, whether it is the basic links such as learning plan formulation, resource utilization, and motivation maintenance, or the deep-level abilities such as method summary, knowledge connection, and self-monitoring, students generally recognize their positive role in improving academic performance and enhancing knowledge mastery, and this recognition has a very strong consistency within the group.

4.3.2 Teaching Quality

Table 4.3 Teaching Quality

Item	Average	Standard Deviation
The teacher's course content design is systematic and coherent, and the explanation of knowledge points is logical and clear, which is convenient for me to understand and master.	4.27	0.873
The teacher adopted a variety of teaching methods	3.76	0.866

(such as case analysis, group cooperation, experimental demonstration, etc.), effectively enhancing my interest in learning and participation.		
The homework and test content assigned by the teacher can precisely match the teaching objectives, helping me consolidate knowledge and enhance my application ability.	3.80	0.859
The teacher was able to promptly answer my questions in class and provide in-depth yet easy-to-understand secondary explanations of complex knowledge points.	3.26	0.903
Teachers will dynamically adjust the teaching pace based on students' feedback in class and their homework to ensure a reasonable teaching rhythm.	3.22	0.895
The learning materials provided by the teacher (such as courseware, extended reading, etc.) are rich and practical, which have a great auxiliary effect on my study.	3.38	0.902
Teachers in the classroom focus on guiding students to think critically and cultivating my independent thinking ability.	3.31	0.883
The teacher has clear assessment standards for the course, and the evaluation process is fair and impartial, which can accurately reflect my learning outcomes.	3.46	0.896

From the results of teaching evaluation, it can be seen that students have the highest recognition of the teacher's course content design and knowledge explanation, with an average score of 4.27, ranking first among all evaluation items, and the standard deviation is 0.873. This indicates that students' evaluation of this item is relatively concentrated. Generally, they believe that the teacher's course content is systematic and coherent, and the knowledge explanation is logical and clear, which is easy to understand and master.

Among other evaluation dimensions, the average scores of the matching degree between homework and test content (3.80) and the diversity of teaching methods (3.76) are relatively high, indicating that teachers have achieved certain results in consolidating students' knowledge and enhancing their interest in learning. The average

scores of dynamic adjustments of teaching rhythm (3.22) and classroom Q&A and secondary explanation (3.26) were the lowest, which are the key links that need to be improved in the teaching process.

From the perspective of standard deviation, the standard deviations of each evaluation item are all within the range of 0.85 to 0.91, with relatively close values. This indicates that the degree of divergence in students' evaluations of various teaching tasks is relatively consistent, and there has been no extremely differentiated opinion on a single evaluation item.

4.3.3 Teachers' Influence

Table 4.4 Teachers' Influence

Item	Average	Standard Deviation
The professional attitude and noble character of the teacher, who leads by example, inspire me to approach my studies with a more serious attitude.	3.37	0.788
The teacher's love and passion for the subject have kindled my strong interest and desire to explore it.	3.29	0.736
The learning experiences and growth stories shared by the teacher have enabled me to master more efficient learning methods and strategies.	3.28	0.741
The affirmation and encouragement given by the teacher have greatly enhanced my confidence in learning and my courage to overcome difficulties.	3.63	0.852
The inclusive and open classroom atmosphere created by the teacher makes me more willing to express my viewpoints and ideas in the learning process.	3.58	0.866
The teacher guided me to establish correct learning goals and values, making me clear about the significance and direction of my studies.	3.52	0.829
The care from teachers in both my studies and life has helped me relieve the pressure of learning and maintain a good learning state.	3.27	0.798

From the evaluation results of students on the non-academic teaching influence of teachers, the affirmation and encouragement from teachers received the highest

recognition, with an average score of 3.63, which was the only dimension among all the evaluation items exceeding 3.6 points. This indicates that the positive feedback given by teachers to students has played a significant role in enhancing their learning confidence and improving their ability to withstand setbacks. Following closely behind are the creation of an inclusive classroom atmosphere (3.58) and the guidance of learning goals and values (3.52), both with an average score of over 3.5. This reflects that teachers have achieved remarkable results in building an open learning environment and helping students clarify the meaning and direction of their learning. However, the average scores for learning and life care (3.27), sharing of learning experiences and growth stories (3.28), and stimulating subject passion and the desire to explore (3.29) are relatively low, all less than 3.3 points. These are the directions that teachers need to focus on optimizing in the non-academic teaching dimension.

From the perspective of standard deviation data, the standard deviations of each evaluation item range from 0.736 to 0.866. Among them, the standard deviation stimulated by subject love and exploration desire is the smallest (0.736), indicating that students' evaluations of this item are the most concentrated. The standard deviation of inclusive classroom atmosphere creation was the largest (0.866), but it was still at a relatively low level overall, indicating that students' evaluations of teachers' non-academic teaching influences were less diverse and their viewpoints were relatively unified.

4.3.4 Students' Learning Quality

Table 4.5 Students' Learning Quality

Item	Average	Standard Deviation
1. Flexibly applying the learned knowledge to new problem situations can solve the subject-related problems encountered in practice.	4.35	0.894
2. Through learning, critical thinking skills are enhanced, enabling one to conduct reasonable analysis and judgment on disciplinary viewpoints or information.	4.48	0.872
3. Maintain a high level of enthusiasm for the subject being studied and be willing to take the initiative to spend time exploring the extended content related to the subject.	3.44	0.793
4. During the learning process, one can clearly perceive their progress and improvement in terms	3.75	0.885

of subject knowledge reserves or skill mastery.		
5. Be able to accurately grasp the internal logic of subject knowledge and construct a systematic framework of subject knowledge.	3.82	0.877
6. When facing complex learning tasks, one can effectively plan the learning steps, complete them efficiently and meet the task requirements.	3.19	0.798
7. Learning achievements are not only reflected in scores, but also in obvious gains in practical applications or innovative thinking related to the subject.	3.79	0.896
8. I am satisfied with my current learning status and achievements and believe that I have reached the learning quality standards I set for myself.	3.02	0.799

From the evaluation results of students' learning quality, in the item of "Through learning, critical thinking skills are enhanced, enabling one to conduct reasonable analysis and judgment on disciplinary viewpoints or information", the average score is the highest, at 4.48 points, which is the only dimension among all evaluation items exceeding 4.4 points. This indicates that during the learning process, students' cultivation of critical thinking ability has achieved remarkable results. Following closely behind is "Flexibly applying the learned knowledge to new problem situations can solve the subject-related problems encountered in practice" (4.35 points), which reflects that students' ability to apply knowledge to practice is also quite prominent. However, the average score for the item "I am satisfied with my current learning status and achievements, and I believe I have reached the learning quality standard I set for myself" is relatively low, only 3.02 points.

From the perspective of standard deviation data, the standard deviations of each evaluation item range from 0.773 to 0.896. Among them, the standard deviation of the item "Maintain a high level of enthusiasm for the subject being studied and be willing to take the initiative to spend time exploring the extended content related to the subject" is the smallest (0.793), indicating that students' evaluation of this item is the most concentrated. The standard deviation of "Learning achievements are not only reflected in scores, but also in obvious gains in practical applications or innovative thinking related to the subject" is the largest (0.896), but overall, it is still at a relatively low level, indicating that the differences in students' evaluations of their own learning quality are small and their viewpoints are relatively unified.

4.4 Correlation Analysis

Correlation analysis is an important method for exploring the correlation between quantitative data. This study employed this method to focus on exploring the correlation between students' learning quality and their self-learning ability, teachers' teaching quality, and teachers' influence. It quantitatively characterized the strength of the correlation among variables by calculating the Pearson correlation coefficient. The Pearson correlation coefficient can effectively reflect the direction (positive or negative) and the degree of closeness of the linear correlation between variables. Its value range is from -1 to 1. The closer the absolute value is to 1, the stronger the correlation; the closer it is to 0, the weaker the correlation. This analysis aims to reveal the intrinsic connections among various research variables, providing data support and theoretical basis for subsequent in-depth studies.

Table 4.6 Pearson Correlation Matrix

Variable	Students' Learning Quality (total score)	Student Self-Learning Ability	Teaching Quality	Teachers' Influence
Students' Learning Quality (total score)	1.000	-	-	-
Student Self-Learning Ability	0.782	1.000	-	-
Teaching Quality	0.693	0.521	1.000	-
Teachers' Influence	0.654	0.487	0.632	1.000
Sample Capacity: N=367 Significance Level: All P-values were <0.001 (by two-tailed test)				

This study conducted Pearson correlation analysis around four core variables: students' learning quality (total score), student self-learning ability, teaching quality, and teachers' influence. The sample size of this analysis is 367, and through the two-tailed test, it was found that the P-values of all variables are less than 0.001, which indicates that the correlation among the variables has significant statistical significance.

From the perspective of the correlation between students' learning quality (total score) and other variables, the correlation coefficient between student self-learning ability and students' learning quality (total score) reaches 0.782, showing a strong positive correlation trend. This means that the level of student self-learning ability is

closely related to their learning quality (total score). When students possess stronger self-learning abilities, they tend to be more proactive in exploring knowledge and solving problems encountered in their studies, thereby more effectively enhancing the quality of their learning.

The correlation coefficient between teaching quality and students' learning quality (total score) is 0.693, indicating a positive correlation between the two. Teaching quality encompasses multiple aspects such as teachers' teaching methods and the design and arrangement of course content. When the teaching quality is high, teachers can convey knowledge more accurately, guide students to think, and create a good learning atmosphere for students. In such an environment, students' learning quality is also more likely to be improved.

The correlation coefficient between teachers' influence and students' learning quality (total score) is 0.654, indicating a positive correlation. The influence of teachers is reflected in many aspects. For instance, a teacher's professional quality can convince students, and a teacher's personal charm can influence students, making them more willing to follow the teacher's guidance to learn, thereby having a positive promoting effect on the quality of students' learning.

In addition to the relationship with students' learning quality (total score), there are also correlations among these variables. The correlation coefficient between student self-learning and teaching quality is 0.521, showing a positive correlation. This indicates that the quality of teaching will to some extent affect the development of student self-learning. High-quality teaching may stimulate students' interest and motivation in independent exploration, and students' positive performance in self-learning may in turn promote the better advancement of teaching activities.

The correlation coefficient between student self- learning ability and teachers' influence is 0.487, which is a positive correlation. Through their own influence, teachers can better guide students to cultivate the awareness and ability of self-learning, and the state demonstrated by students during the process of autonomous learning will also enable teachers to exert their influence more purposefully.

The correlation coefficient between teaching quality and teachers' influence is 0.632, showing a positive correlation. Teachers with strong influence tend to be more efficient in organizing teaching and improving teaching quality. Meanwhile, high-quality teaching practice also helps teachers further enhance their own influence.

4.5 Regression Analysis

Table 4.7 Regression Analysis Results

Predictor Variable	Non-standardized Coefficient(B)	Standard Error (SE)	Standardization Coefficient (β)	t	p
(Constant)	12.354	2.187	-	5.649	<0.001
Student Self-Learning Ability	0.682	0.042	0.573	16.238	<0.001
Teaching Quality	0.321	0.038	0.278	8.447	<0.001
Teachers' Influence	0.198	0.036	0.169	5.500	<0.001
R^2	0.742				
Adjusted R^2	0.739				
F	243.617				

From the regression coefficients, the constant term is 12.354, the standard error is 2.187, the t value is 5.649, and the p value is less than 0.001, which is statistically significant. The non-standardized coefficient (B) of students' self-learning ability is 0.682, the standard error is 0.042, the standardized coefficient (β) is 0.573, the t value is 16.238, and the p value is less than 0.001, indicating that students' self-learning ability has a significant positive impact on the dependent variable. The non-standardized coefficient (B) of teaching quality is 0.321, the standard error is 0.038, the standardized coefficient (β) is 0.278, the t value is 8.447, and the p value is less than 0.001, indicating that teaching quality has a significant positive effect on the dependent variable. The non-standardized coefficient (B) of teachers' influence is 0.198, the standard error is 0.036, the standardized coefficient (β) is 0.169, the t value is 5.500, and the p value is less than 0.001, indicating that teachers' influence has a significant positive impact on the dependent variable.

In terms of goodness of fit, the R^2 value of the model reaches 0.742, and the adjusted R^2 value is 0.739. This indicates that the independent variable can explain 74.2% of the changes in students' learning quality, suggesting that the models has a high explanatory power for the actual data. Further analysis of variance reveal that the F-test statistic is 243.617, and the significance level p value is less than 0.001. Under the condition of rejecting the null hypothesis, it fully demonstrates that there is a highly significant linear relationship between the independent variable and the dependent variable, that is, the constructed regression model has a solid statistical foundation. It

can be effectively used to explore the influence of independent variables on students' learning quality.

Chapter 5 Conclusion and Recommendation

5.1 Conclusion

Through a questionnaire survey and empirical analysis of 367 students of Tianjin College, University of Science and Technology Beijing, this study deeply explored the mechanism of action of three major factors - students' self-learning ability, teaching quality, and teachers' influence - on students' learning quality. The results of both regression and correlation analysis indicate that all three have a significant positive impact on the quality of learning, but the degree of influence varies. The specific conclusions are as follows:

5.1.1 The Positive Impact of Student Self- Learning Ability on Learning Quality

The research results show that student self-learning ability has the most significant impact on learning quality, and its standardized regression coefficient reaches β=0.573. This indicates that in the learning process, self-learning is not only a direct driving force for students' academic performance improvement, but also an important guarantee for the internalization of knowledge and the cultivation of abilities.

If students can formulate clear study plans, make rational use of learning resources, maintain their enthusiasm for learning, and constantly summarize methods suitable for themselves during the learning process, their learning efficiency and effectiveness will be significantly improved. High-level self-learning also helps students demonstrate greater learning resilience when facing difficulties, thus forming a virtuous learning cycle. In addition, self-learning not only enhances students' mastery of knowledge but also further promotes the development of critical thinking, innovation ability and interdisciplinary application ability, which has profound significance for cultivating high-quality applied talents.

5.1.2 The Positive Impact of Teaching Quality on Learning Quality

The teaching quality of teachers also has a significant impact on the learning quality of students. Regression analysis shows that its standardized regression coefficient is β=0.278. This means that the teaching design, methods and evaluation of teachers in the classroom have a direct promoting effect on students' learning outcomes.

Research has found that when teachers design course content with strong systematisms and clear logic, students are more likely to understand and master professional knowledge, thereby improving their learning efficiency. Meanwhile, diverse teaching methods (such as case analysis, group discussion, experimental demonstration, etc.) can stimulate students' interest in learning and their participation in class, thereby enhancing their learning experience and quality. If teachers can closely integrate the assignment of homework and tests with teaching objectives, it can also effectively help students consolidate their knowledge and apply their abilities.

However, the survey results also show that teachers still have deficiencies in aspects such as classroom interaction, problem-solving, and dynamic adjustment of teaching progress. This indicates that although the overall teaching quality is relatively high, there is still room for improvement in terms of teaching flexibility and individualized instruction.

5.1.3 The Positive Impact of Teachers' Influence on Learning Quality

Although the effect of teachers' influence on students' learning quality is not as significant as the former two, the regression results show that its standardized regression coefficient is $\beta=0.169$. Teachers not only influence students through academic imparting, but also profoundly shape students' learning attitudes and goals through non-academic factors such as personal charm, value guidance and humanistic care.

Research shows that teachers' encouragement and affirmation, an open and inclusive classroom atmosphere, as well as correct value guidance can significantly enhance students' confidence and enthusiasm in learning. Especially the encouragement given by teachers to students at the spiritual level can effectively enhance their ability to cope with difficulties and stimulate their intrinsic motivation for continuous learning.

However, students' evaluations of teachers in sharing personal learning experiences, stimulating subject interest, and showing care in daily life are relatively low. This indicates that the influence of teachers at the non-academic level has not been fully exerted and needs to be further optimized.

Student self-learning ability is the most crucial factor influencing the quality of learning, while teachers' teaching quality and influence play an auxiliary and promoting role. The three complement each other and work together, forming a complete dynamic mechanism for improving students' learning quality.

5.2 Recommendation

Based on the research conclusions, this study puts forward the following improvement suggestions from the three levels of students, teachers and schools, with the aim of comprehensively enhancing the learning quality of students.

5.2.1 Strengthen Student Self-Learning Ability

Integrate learning method guidance, learning plan formulation and learning reflection into the course design to help students gradually form scientific autonomous learning habits both inside and outside the classroom. Build an online and offline integrated learning resource platform, providing diversified materials such as textbooks, cases, academic papers and MOOC courses, and encourage students to actively search and apply them to improve learning efficiency.

Incorporate the achievements of self-study (such as self-study reports, research projects, and project practices) into credit assessment or scholarship evaluation to enhance students' sense of responsibility and self-motivation. By establishing study groups, organizing experience exchange meetings and other means, students can inspire each other in cooperation, form a learning community and promote the overall improvement of the learning quality of the group.

5.2.2 Comprehensively Enhance the Teaching Quality of Teachers

Teachers should pay attention to the systematism and logic of the course content, ensure the continuity of teaching content, and avoid the phenomenon of fragmented knowledge imparting. Actively explore diverse teaching methods such as case teaching, project-based learning, and flipped classrooms to enhance classroom interactivity and interest, thereby stimulating students' interest in learning.

Teachers should enhance classroom interaction and after-class Q&A sessions, promptly understand students' learning difficulties, and dynamically adjust the teaching pace based on feedback to increase the pertinence of teaching. Establish a system that combines process evaluation with result evaluation, paying more attention to the examination of students' application ability, innovative thinking and critical thinking, rather than just being limited to knowledge memory. Schools should establish teacher teaching development centers, providing regular teaching training, peer evaluation and reflection platforms, and encourage teachers to continuously improve their teaching abilities and professional qualities.

5.2.3 Enhance the Educational Influence of Teachers

Teachers should pay attention to students' mental health and living conditions, offer care and support in both academic and daily life, and help students relieve their study pressure. Teachers should guide students to form correct learning attitudes and values by sharing their own learning experiences and growth stories and exert the exemplary leading effect. Teachers should combine the cutting-edge research achievements of their disciplines with practical application cases to stimulate students' desire for exploration and enthusiasm for learning and enhance their motivation for active learning. Teachers should create an inclusive and respectful teaching environment, encourage students to actively express their views and raise questions, and promote the classroom to become a platform for the exchange of ideas. Teachers should pay attention to communication and interaction with students in their daily study and life, form a teacher-student relationship based on trust, and thereby further enhance students' learning motivation and learning quality.

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Appendix

Dear students,

Hello! To more accurately explore the key factors influencing students' learning quality, we have designed this questionnaire. The questionnaire filling will be based on your real learning experience and feelings. There is no distinction of superiority or inferiority among all the answers to the questions. All feedback is crucial to the research.

This survey is only for academic research. The questionnaire data is strictly confidential and does not involve your personal name, grades or other identity-related information. Your privacy will be fully protected. We sincerely ask you to fill in the form truthfully based on the actual situation. Your sincere feedback will provide an important reference for optimizing learning support and improving learning quality. Thank you for your understanding and support!

Part I: Basic information

1. Your gender:

□ Boy □ Girl

2. Your age:

□ 19-20 years old □ 20-21 years old □ 21-22 years old □ 22-23 years old

3. Your grade:

□ Grade 1 □ Grade 2 □ Grade 3 □ Grade 4

Part II: Please, based on your own actual situation, assess your degree of agreement with each of the following statements and mark a "√" before the number corresponding to the option that best aligns with your thoughts.

This questionnaire adopts a 5-point Likert scoring scale. The specific scoring criteria are as follows:

1 point: Strongly disagree

2 points: Somewhat disagree

3 points: Neutral (neither agree nor oppose)

4 points: Relatively agree

5 points: Strongly agree

Questions	5	4	3	2	1
Student Self-Learning					
1. Based on the course objectives and one's own situation, independently formulating a clear study plan and strictly adhering to it can improve academic performance.					
2. During the learning process, actively seeking out and rationally					

utilizing diverse learning resources (such as books, online courses, academic papers, etc.) can promote learning.					
3. When confronted with dull or challenging learning content, maintaining enthusiasm for learning and actively overcoming the fear of difficulties is conducive to academic progress.					
4. Summarizing learning methods that suit oneself, such as memory techniques and note-taking organization methods, and applying them flexibly can help improve academic performance.					
5. When learning new knowledge, actively thinking about its connection with existing knowledge and building a knowledge system can quickly clarify the knowledge context.					
6. Regularly assessing one's own learning outcomes and promptly adjusting learning strategies and progress based on the assessment results can enhance learning efficiency.					
7. Without external supervision, voluntarily completing learning tasks such as previewing and reviewing can better enhance the mastery of knowledge.					
8. When encountering learning problems, proactively solving them through various means such as group discussions, consulting materials, and seeking advice from others can rapidly improve academic performance.					
Teaching Quality					
1. The teacher's course content design is systematic and coherent, and the explanation of knowledge points is logical and clear, which is convenient for me to understand and master.					
2. The teacher adopted a variety of teaching methods (such as case analysis, group cooperation, experimental demonstration, etc.), effectively enhancing my interest in learning and participation.					
3. The homework and test content assigned by the teacher can precisely match the teaching objectives, helping me consolidate knowledge and enhance my application ability.					
4. The teacher was able to promptly answer my questions in class and provide in-depth yet easy-to-understand secondary explanations of complex knowledge points.					
5. Teachers will dynamically adjust the teaching pace based on students' feedback in class and their homework to ensure a reasonable teaching rhythm.					

6. The learning materials provided by the teacher (such as courseware, extended reading, etc.) are rich and practical, which have a great auxiliary effect on my study.					
7. Teachers in the classroom focus on guiding students to think critically and cultivating my independent thinking ability.					
8. The teacher has clear assessment standards for the course, and the evaluation process is fair and impartial, which can accurately reflect my learning outcomes.					
Teachers' Influence					
1. The professional attitude and noble character of the teacher, who leads by example, inspire me to approach my studies with a more serious attitude.					
2. The teacher's love and passion for the subject have kindled my strong interest and desire to explore it.					
3. The learning experiences and growth stories shared by the teacher have enabled me to master more efficient learning methods and strategies.					
4. The affirmation and encouragement given by the teacher have greatly enhanced my confidence in learning and my courage to overcome difficulties.					
5. The inclusive and open classroom atmosphere created by the teacher makes me more willing to express my viewpoints and ideas in the learning process.					
6. The teacher guided me to establish correct learning goals and values, making clear about the significance and direction of my studies.					
7. The care from teachers in both my studies and life has helped me relieve the pressure of learning and maintain a good learning state.					
Students' Learning Quality					
1. Flexibly applying the learned knowledge to new problem situations can solve the subject-related problems encountered in practice.					
2. Through learning, critical thinking skills are enhanced, enabling one to conduct reasonable analysis and judgment on disciplinary viewpoints or information.					
3. Maintain a high level of enthusiasm for the subject being studied and be willing to take the initiative to spend time exploring the					

extended content related to the subject.					
4. During the learning process, one can clearly perceive their progress and improvement in terms of subject knowledge reserves or skill mastery.					
5. Be able to accurately grasp the internal logic of subject knowledge and construct a systematic framework of subject knowledge.					
6. When facing complex learning tasks, one can effectively plan the learning steps, complete them efficiently and meet the task requirements.					
7. Learning achievements are not only reflected in scores, but also in obvious gains in practical applications or innovative thinking related to the subject.					
8. I am satisfied with my current learning status and achievements and believe that I have reached the learning quality standards I set for myself.					