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Constructing a new field of ecology for tourism major education in vocational colleges: A research study

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Abstract

This study employs a quantitative analysis of teacher capabilities, student qualities, and other factors to explore the construction of a new educational ecology for tourism majors in higher vocational colleges. This study employed a quantitative approach with a total of 851 participants. The main data analysis was conducted through observation and questionnaires from teachers and students majoring in tourism. Research findings show that teacher capabilities and student qualities are key in shaping tourism education. This aids in establishing a new educational paradigm. Additionally, national policies, societal needs, and institutional support can align to facilitate this process. Constructing a new ecosystem in the field of tourism education at vocational colleges is a comprehensive endeavor that demands collective efforts. This process involves enhancing the capabilities of teachers and the qualities of students, alongside the synergistic influence of national policies, societal demands, and institutional support. The limited sample size of this study may constrain the generalizability of its results, and there is a possibility of dishonest responses among the students. This study holds significant practical and policy implications for constructing a new ecosystem in the field of tourism education at vocational colleges, contributing to enhancing the quality of talent cultivation, driving industry development, and fostering in-depth academic research. This study delves into teacher competence, student quality, and external factors in vocational college tourism education's ecosystem. It provides insights to enhance education practices and policies, boosting tourism education and industry growth.

Keywords: Constructing, Ecology, Education, Higher vocational colleges, Major in tourism, New ecology, Research study.

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Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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1. Introduction

In recent years, the tourism industry has experienced rapid growth and transformation in China, becoming a key driver of economic development and an essential sector in the nation's socio-economic landscape. As the demand for skilled professionals in the tourism sector continues to rise, higher vocational education has assumed a critical role in nurturing talents to meet industry needs [1]. However, amidst the backdrop of constructing the new countryside under socialism and the evolving economic landscape, higher vocational education faces both opportunities and challenges in providing quality education for tourism majors. According to Thouki [2], investigating the caliber of education in tourism-related majors is a significant and worthwhile topic. Ensuring the quality of tourism major education primarily revolves around guaranteeing favorable learning outcomes and fostering the personal growth of both teachers and students. Elevating the capabilities of tourism major students and establishing an improved educational environment are vital aspects of enhancing the overall educational quality. Fangjun [3] suggests that constructing a new ecology for tourism major education is an effective approach to achieving these objectives.

According to the actual performance of domestic tourism, it plays an extremely important role in the national economic system and is the primary driving force to promote the rapid growth of the national economy. China's inbound tourism plays an extremely broad role all over the world [4]. At present, China's tourism market ranks highly in the international field. According to the global tourism development report of the National Tourism Administration, China's domestic tourism reached 5.44 billion people in 2021, and the per-capita travel rate reached 3 times Figure 1. China's tourism has become a necessity for the Chinese people. In 2021, the number of tourists in China's domestic, inbound, and outbound tourism markets reached 4.7 billion, and the scale of tourism consumption was 5.5 trillion yuan. In 2021, China's tourism industry actually completed an investment of 1299.7 billion yuan, with a year-on-year increase of 29% Figure 2. Compared with the tertiary industry and fixed capital, it is precisely because of the development advantages shown by the tourism industry that scholars began to explore and analyze the talent reserve of the tourism industry. In 2019, the National Tourism Administration made clear the three needs of Tourism Talents: one is the need for a variety of tourism talents; the other is that the demand for tourism talents shows strong characteristics of the times; and the third is the multi-channel training of tourism talents. After a few years, only a small percentage of students majoring in tourism usually continue to engage in this profession, and the rest choose to change careers [5]. Industry insiders generally believe that this phenomenon reflects that educational resources have not been effectively used, which belongs to the non-use of learning.

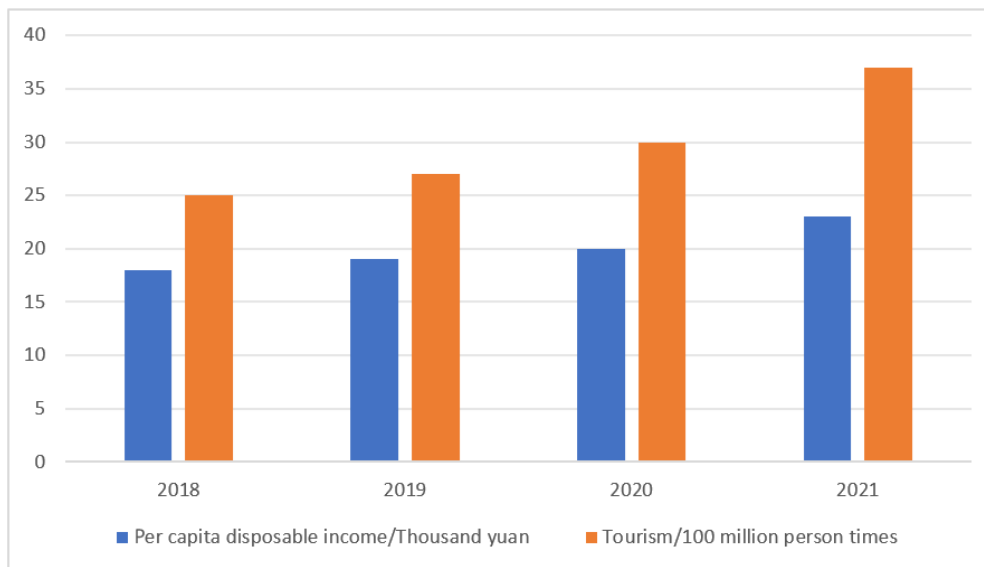


Figure 1. China's tourism has become a necessity for the Chinese people.



Figure 2. Compared with the tertiary industry and fixed capital.

The quality of education in tourism-related disciplines within higher vocational institutions has become a subject of increasing importance and concern. Several surveys have revealed that students enrolled in vocational colleges are dissatisfied with the education they receive, while employers express reservations regarding the knowledge, skills, attitudes, and overall preparedness of graduates [6]. This situation highlights the pressing need for exploring and implementing a new ecological framework for tourism major education in higher vocational colleges. The establishment of a new ecological framework for tourism major education aims to ensure enhanced learning outcomes, personal growth, and professional competencies among both educators and students. As the socio-economic landscape undergoes crucial transformations and the tourism industry demonstrates its significance in China's economic growth, it becomes imperative to align educational approaches with the evolving demands and expectations of the sector.

This research study seeks to delve into the construction of a new ecological framework for tourism major education in higher vocational colleges. This study looks at the current state of tourism major education, how market demand, teacher skills, and student qualities affect it, as well as how national policies and industry needs support it. The goal is to find good ways to make sure that tourism education is relevant and of high quality [7]. In this study, the difficulties and chances that higher vocational schools face when offering tourism major programmes are carefully looked at in order to provide useful information and suggestions for creating a more dynamic, industry-driven, and creative way to train skilled workers for the growing tourism industry. By bridging the gap between academia and industry, this research seeks to promote synergies that foster the development of a well-qualified and adaptable workforce capable of driving the tourism industry's sustained growth and contributing to China's overall economic prosperity in the context of the new countryside construction. Ultimately, the findings of this study are expected to pave the way for educational reforms and policy adjustments that align with the evolving needs of the tourism industry, creating a more resilient and responsive higher vocational education system for tourism majors.

2. Literature Review

2.1. General Research on Teacher Capability Influences Professional Development

When it comes to the impact of teacher competence on professional development, relevant literature indicates that teachers' subject knowledge, teaching skills, professional growth, and leadership play a crucial role in educational quality and students' learning outcomes. In the study conducted by [Hennessy, et al. \[8\]](#), they reviewed the literature concerning teacher competence and its influence on professional development, finding that teachers' subject knowledge, teaching skills, teaching methods, and professional growth significantly affect professional development and students' learning outcomes. This emphasizes the importance of teacher competence in relation to teaching quality and professional development, providing valuable guidelines for enhancing teacher competence. Another study by [Keller-Schneider, et al. \[9\]](#) explores the role of teacher leadership in professional development and curriculum design. The research reveals that teacher competence and leadership play a crucial role in professional development and curriculum design. Teacher leadership is pivotal in school organizations, promoting the improvement of teaching quality and continuous development within the education system. The research conducted by [Taylor, et al. \[10\]](#) investigated the correlation between teacher competence and students' academic performance in higher education. The study shows that teachers' subject knowledge, teaching experience, and teaching methods positively influence professional development in higher education and students' academic performance [11]. This indicates the significant importance of teacher competence in enhancing students' learning achievements and teaching quality.

Based on the above literature, teachers' subject knowledge, teaching skills, professional growth, and leadership are essential components of teacher competence, significantly impacting professional development and students' learning outcomes [12]. Understanding and improving teacher competence provide crucial reference points for optimizing teaching quality and professional development. Educational institutions and policy-makers should prioritize the cultivation of teacher competence, providing continuous opportunities for professional development to construct a more competitive and adaptable education system.

2.2. Research on Students' Abilities Influences Professional Development

In today's society, the goal of higher education is not only to impart academic knowledge but also to cultivate students' comprehensive abilities, making them excellent professionals capable of facing the challenges in the professional world. To explore the impact of students' comprehensive abilities on professional development, researchers have conducted a series of studies and provided insights from different perspectives. [Mahanal, et al. \[13\]](#) conducted a survey and data analysis in a vocational school, discovering that students' comprehensive abilities play a crucial role in their career development. The research results suggest that the enhancement of students' comprehensive abilities is of significant importance for the continuous development of their professions. Meanwhile, [Ozan \[14\]](#) employed a longitudinal study, tracking students' learning processes from enrollment to graduation and evaluating their comprehensive abilities. The study findings indicate that students' comprehensive abilities are closely related to their professional development, which is a key factor in shaping future outstanding professionals. In contrast, [Soares, et al. \[15\]](#) conducted a case study to explore how to improve students' comprehensive abilities to meet the challenges of the professional world. The research indicated that schools can adjust teaching methods and course settings, strengthen practical teaching and social internships, and purposefully foster students' comprehensive abilities, thereby helping them better adapt to the development and changes in their respective fields. Taken together, these literature sources demonstrate that students' comprehensive abilities play an indispensable role in professional development. Cultivating students' comprehensive abilities should become a significant objective of higher education. To better adapt to the challenges in the professional world, educational institutions and educators should actively explore effective teaching methods to promote students' comprehensive ability development [16]. Furthermore, these studies provide valuable references for future explorations in related fields.

In conclusion, students' comprehensive abilities are closely associated with professional development, and their cultivation should be highly valued. In higher education, comprehensive measures should be adopted to enhance students' all-round qualities, thereby nurturing more outstanding professionals capable of meeting the demands of professional development.

2.3. Research on School Support Influence Professional Development

In today's society, one of the goals of higher education is to cultivate students into excellent professionals who can adapt to the challenges of the professional world. Schools' support is crucial in this process. To explore how school support influences professional development, scholars have conducted a series of studies and provided valuable insights from different perspectives. Spratt [17] utilized longitudinal research methods to investigate the role of school support in shaping students' professional development. The research tracked the learning journeys of a group of students from enrollment to graduation and evaluated the level of school support. The results indicated that school support significantly influences students' professional choices, learning motivation, and career planning. This literature emphasizes the pivotal role of school support in enhancing students' comprehensive qualities and future career success. Toropova, et al. [18] conducted case studies in several high-performing schools to explore the impact of school support on students' professional development. The research findings revealed that high-performing schools foster students' professional skills and comprehensive abilities by creating a favorable learning environment, providing personalized guidance, and offering career planning support. These measures contribute to students' success in their future careers [19]. conducted a comparative study on different school counseling approaches and their effects on students' professional development. By comparing counseling programs implemented in multiple schools, the researchers found that school counseling significantly influences students' professional development by providing career information, career decision-making support, and vocational skills training. This literature emphasizes the importance of school counseling in shaping students' career awareness and career preparation.

Taken together, these literature sources reveal the significance of school support in professional development. School support encompasses various aspects, including the overall school environment and counseling programs, and plays a critical role in students' professional choices, career paths, and comprehensive abilities [20]. Therefore, in higher education, schools should strengthen comprehensive support for students to foster them into outstanding professionals capable of meeting the demands of future career development.

On the basis of the above, you have proposed the following research hypotheses:

H₁: Teacher competence can significantly influence learning in the construction of a new ecological environment for tourism-related majors.

H₂: Students' comprehensive abilities can significantly influence the construction of a new ecological environment for tourism-related majors.

H₃: School support plays a mediating role in the construction of a new ecological environment for tourism-related majors.

H₄: The social environment plays a mediating role in the construction of a new ecological environment for tourism-related majors.

3. Research Design & Methodology

3.1. Research Model

This study aims to investigate the existing problems in tourism education in vocational colleges and construct a new educational ecology for the specialization, with the ultimate goal of improving quality and cultivating excellence. Additionally, we will present the methods used to validate and evaluate the research model. Figure 3 illustrates the specific research model used in the study.

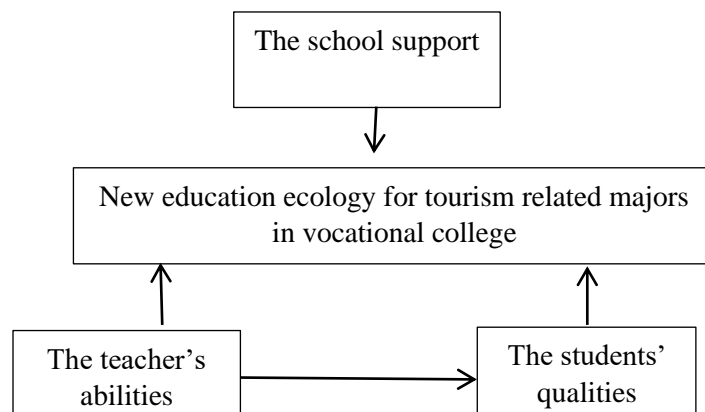


Figure 3.
Hypothetical model.

3.2. Research Methods and Samples

3.2.1. Objects and Samples

The researcher has an extensive history of engagement with vocational colleges located in Chongqing, China. The institution to which the researcher is affiliated operates in collaboration with the Chongqing Municipal Commission of Culture and Tourism. This collaboration provides the researcher with stable and viable research resources, enabling swift and accurate identification of suitable subjects for investigation and research. This advantageous situation significantly enhances the precision and efficacy of the primary research data collected. The scope of this study encompasses the instructional personnel of tourism programs at vocational colleges in Chongqing, the very region where the researcher is actively involved. This inclusive group encompasses full-time educators, adjunct instructors, teaching coordinators, assistants engaged in practical courses, and all other individuals contributing to the educational landscape.

3.2.2. Data Analysis

The data for this study were gathered in October 2022 from students at a vocational college in Chongqing, China, using a combination of questionnaire surveys and interviews. In order to enhance both convenience and authenticity in the survey, electronic questionnaires were employed. There were designated individuals in charge of overseeing the process and the distribution of survey questionnaires. A convenience sampling method was utilized, resulting in the distribution of 851 questionnaires, of which 840 were successfully collected. After removing 29 invalid questionnaires, which included those with missing values and identical responses to consecutive questions, a total of 811 valid questionnaires remained, resulting in an effective utilization rate of 95.3%. Among the participants, there were 603 female students and 208 male students. This meticulous data collection process aimed to provide a practical and representative sample to support the research objectives and ensure the reliability of the findings.

3.2.3. Teacher Knowledge and Skills Scale for Tourism Major Education in Vocational Colleges

Building upon the research content and objectives, a "Teacher Knowledge and Skills Scale" has been developed. This scale utilizes a 5-point Likert scale for scoring, where 1 represents "strongly disagree" and 5 represents "strongly agree." Higher scores indicate stronger levels of teacher support, while lower scores indicate weaker levels of teacher support [21]. Please refer to [Table 1](#) for the specific content of the scale, which complies with the recommended standards of scholars. The scale demonstrates good reliability and validity, as all standardization factors with values greater than 0.5 have been confirmed.

Throughout the scale design process, we strictly adhered to academic norms to ensure an accurate measurement of the influence of teacher knowledge and skills on student support levels. We encourage participants to provide ratings based on their genuine perceptions to ensure the reliability and effectiveness of the survey results. The scale's strong reliability and validity will contribute to a deeper understanding of the impact of teacher support on professional development and provide a more robust basis for interpreting future research findings.

3.2.4. Teacher Quality and Competence Scale for Tourism Major Education in Vocational Colleges

After careful consideration of the research content and objectives, we decided to utilize the "Learning Climate Questionnaire" (LCQ), originally developed by [Simon and Salanga \[22\]](#), for this study. The questionnaire employs a 5-point Likert scale for scoring, with 1 indicating "strongly disagree" and 5 representing "strongly agree." Please refer to [Table 1](#) for the specific items included in the scale, which adheres to the recommended standards set by scholars. The scale exhibits strong reliability and validity, as all standardized factor loadings exceed 0.5.

In this research, the LCQ is employed to measure the learning environment experienced by the students. The application of this questionnaire will provide valuable data to gain a deeper understanding of the learning climate surrounding students in the context of tourism-related professional development. We have taken into account the scale's reliability and validity, ensuring its accurate representation of the impact of the learning environment on students in this study. By utilizing this scale, we aim to comprehensively comprehend the learning conditions and atmosphere that students encounter during their professional development, providing valuable insights to improve educational approaches and enhance learning outcomes.

3.2.5. Student Learning Ability Scale for Tourism Major Education in Vocational Colleges

In this study, student learning ability is defined as the students' perception of their capability to effectively accomplish learning tasks and attain academic success. It serves as a comprehensive measure of efficacy. A scale was made by combining existing scales from the Motivated Strategies for Learning Questionnaire (MSLQ), Patterns of Adaptive Learning Scales (PALS), and other relevant sources [23]. This was done after carefully thinking about the research topic and goals. The scale consists of four themes and adopts a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Higher scores on the scale indicate stronger learning abilities, while lower scores imply weaker learning abilities. As indicated in [Table 1](#), the scale adheres to the recommended standards established by scholars.

During the scale's design process, we carefully considered and integrated various existing scales, making appropriate adjustments to ensure its effectiveness and accuracy in assessing students' learning abilities. By utilizing this scale, we aim to gain comprehensive insights into students' perceptions of their learning capabilities, thereby providing robust support for our research objectives. The scale's reliability and validity meet academic requirements, which will facilitate a thorough analysis of the influence of student learning ability on professional development and offer valuable guidance for educational practices.

3.2.6. Student Knowledge Ability Scale for Tourism Major Education in Vocational Colleges

In this study, the Student Knowledge Ability Scale used for vocational colleges is a customized adaptation of the learning situation scale revised by Johnston, et al. [24]. Comprising 14 items, the scale primarily emphasizes dimensions related to "learning cognitive abilities." Respondents rate each item on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Higher scores on the scale indicate stronger student knowledge abilities, while lower scores suggest weaker student knowledge abilities. The learning situation scale, which is analyzed in this research, is presented in Table 1 and conforms to the recommended standards of scholars. By utilizing the adapted learning situation scale by Johnston, et al. [24], we can effectively assess student knowledge abilities in vocational colleges. This scale provides valuable insights into students' academic performance, especially concerning their cognitive learning capacities. Its reliability and validity, in line with academic standards, ensure the credibility of the results, enabling us to draw significant conclusions about the impact of student knowledge abilities on their professional development.

3.2.7. Student Thinking Ability Scale for Tourism Major Education in Vocational Colleges

Considering the research content and objectives, a total of 15 items constituted the scale used in this study. Respondents employed a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) to assess each item. Higher scores on the scale indicate greater levels of thinking abilities, while lower scores signify lower levels of thinking abilities. Throughout the analysis, the researcher assessed the scale's reliability and validity by computing Cronbach's alpha and average variance extracted (AVE) from the academic achievement scale. As shown in Table 1, the Student Thinking Ability Scale exhibited Cronbach's alpha and AVE values of 0.91 and 0.62, respectively. These results affirm the scale's robust reliability and validity, aligning with the recommended standards established by scholars. The incorporation of 15 items in the scale ensures a comprehensive evaluation of students' thinking abilities, aligning with the research objectives. By utilizing this scale, the study aims to gain valuable insights into students' cognitive capacities. The high Cronbach's alpha and AVE values indicate the scale's sound measurement accuracy and effectiveness, providing confidence in drawing meaningful conclusions regarding the impact of thinking abilities on students' academic performance and professional development.

Table 1.
Reliability and convergence validity.

	Cronbach's alpha	CR	AVE
Teacher knowledge and skills	0.95	0.98	0.72
Teacher quality and competence	0.88	0.88	0.63
Student learning ability	0.91	0.94	0.63
Student knowledge ability	0.90	0.96	0.66
Student thinking ability	0.91	0.95	0.62

4. Research Results and Analysis

In this study, the participants were subjected to testing using the research methods and tools previously described. The data collected and the subsequent discussions are presented as follows:

4.1. Analysis Tools and Research Methods

For data analysis, this study utilizes SPSS (Statistical Package for the Social Sciences) 25.0 and AMOS (Analysis of Moment Structures) 22.0 as the primary software. The data analysis involves three main steps. First, Confirmatory Factor Analysis (CFA) is employed to assess the reliability and validity of the variables, including vocational college teachers' knowledge skills, teacher quality abilities, student learning abilities, student knowledge abilities, and student thinking abilities. This step ensures that the selected measurement items effectively measure the underlying constructs. Second, Pearson Correlation Analysis. The Pearson correlation method is applied to investigate the pairwise relationships between the aforementioned variables, namely teacher knowledge skills, teacher quality abilities, student learning abilities, student knowledge abilities, and student thinking abilities. This analysis helps identify any significant associations and interconnections among these constructs. Third, Testing the Mediation Hypothesis. To test the mediation hypothesis, the study utilizes the SPSS macro process proposed by Bolin [25]. Using the bias-corrected percentile bootstrap method, this study can examine various mediation adjustment models. This macro process allows for the verification of potential mediating effects, including academic self-efficacy, and investigates whether the first or second half of the mediation effect is moderated. Previous studies by Kolb, et al. [26] have demonstrated the efficacy of this approach in analyzing mediation effects. In this study, the survey not only investigates the direct relationships between teacher knowledge skills, teacher quality abilities, student learning abilities, student knowledge abilities, and student thinking abilities but also delves into the potential mediating effects of school support effects and professional commitment. This comprehensive analysis enables a deeper understanding of the complex relationships and factors influencing professional development in the context of vocational colleges.

4.2. Analysis of Research Results

4.2.1. Common Method Deviation Test

Two methods, proactive prevention and subsequent detection, were utilized in this study to address potential common method bias. To minimize errors, anonymous measurements and a balanced sequence of questionnaires were employed. The results of Harman's one-factor test indicated that the variance explanation rate of the single factor for all items was 19.35%,

which is below the threshold of 40%. As a result, the sample does not exhibit any significant common method bias. These measures establish the validity and reliability of the research findings and validate that the observed relationships among variables remain unaffected by common method bias.

4.2.2. Difference Analysis of Control Variables

According to the findings, there are notable gender differences in teacher knowledge skills ($t=1.121, p<0.05$), with male teachers demonstrating higher levels in comparison to their female counterparts. Similarly, significant gender differences are observed in teacher quality abilities ($t=1.667, p<0.001$), with male teachers demonstrating higher levels than female teachers. On the other hand, significant gender differences in student learning abilities are found ($t=-0.885, p<0.001$), with female students exhibiting higher learning abilities than male students. Moreover, there are gender differences in student knowledge abilities ($t=0.037, p<0.05$), with female students displaying higher knowledge abilities than male students. Regarding student thinking abilities, significant gender differences are observed ($t=0.038, p<0.05$), with female students showing higher thinking abilities than male students. Additionally, significant differences in teacher support based on geographical area are identified. Specifically, in rural areas compared to urban areas, there are lower levels of teacher knowledge skills ($t=-1.377, p<0.05$), teacher quality abilities ($t=-1.294, p<0.05$), student learning abilities ($t=-1.356, p<0.05$), student knowledge abilities ($t=-1.275, p<0.05$), and student thinking abilities ($t=-1.382, p<0.05$). However, no significant differences are found in other aspects. Furthermore, using analysis of variance (ANOVA), differences in student knowledge abilities among different grade levels are revealed ($F=10.533, p<0.001$). Post-hoc comparisons through the LSD (Least Significant Difference) method show that third-year students have higher knowledge abilities compared to both second-year and first-year students.

4.2.3. Correlation Test between Variables

By employing simple descriptive statistics and Pearson correlation analysis, this study examined the associations between teacher knowledge skills, teacher quality abilities, student learning abilities, student knowledge abilities, and student thinking abilities. The results revealed several significant positive correlations. Firstly, there was a significant positive correlation between teacher knowledge skills and vocational college students' knowledge abilities ($r=0.49, p<0.01$). Secondly, a significant positive correlation was found between teacher knowledge skills and student thinking abilities ($r=0.34, p<0.01$). Additionally, teacher quality abilities exhibited a significant positive correlation with vocational college students' learning abilities ($r=0.23, p<0.01$).

Importantly, all correlation coefficients were lower than the square root of the Average Variance Extracted (AVE) for their respective constructs, providing evidence of discriminant validity, as indicated in Table 2. These preliminary findings support the research hypotheses and warrant further verification. The observed correlations between teacher knowledge skills, teacher quality abilities, student learning abilities, student knowledge abilities, and student thinking abilities provide important insights and evidence for understanding the interactions of these factors in the process of professional development.

Table 2. Statistics of basic information.

Variable	Basic statistics			Correlation coefficient		
	M	SD	M	SD	M	SD
Teacher knowledge skills	3.37	0.59	387	0.49**	0.37**	1
Teacher quality abilities	3.13	0.58	387	0.35**	1	0.34**
Student learning abilities	3.28	0.48	387	0.23**	0.38**	1
Student knowledge abilities	3.13	0.61	387	0.31**	0.53**	0.56**
Student thinking abilities	3.16	0.59	387	0.30**	0.52**	0.55**

Note: ** $p<0.01$.

4.2.4. Mediation Effect Test

In this study, we utilized path analysis to explore the potential mediation of school support in the relationship between teacher knowledge skills and student abilities, while also considering gender and grade type as control variables. In our research model, teacher knowledge skills served as the independent variable (X), school support was examined as the mediating variable (M), and student quality abilities were considered the dependent variable (Y). To assess the significance of the mediation effect, we employed the SPSS macro process V4.0, as developed by Hennessy, et al. [8], with 5000 bootstrap samples. The model's overall results are illustrated in Figure 4, with a confidence interval set at 95%. The findings indicate a substantial and positive influence of school support on student quality abilities ($\beta=0.29, 95\% \text{ CI} = 0.23 \text{ to } 0.32, \text{ SE}=0.03, t=12.36, p<0.001$). Furthermore, school support also demonstrates a significant positive impact on teacher quality abilities ($\beta=0.43, 95\% \text{ CI} = 0.38 \text{ to } 0.51, \text{ SE}=0.04, t=16.13, p<0.001$). We used bootstrapping to check how important the mediating effect was, and the results show that it is important with a 95.3% confidence interval that doesn't include zero [27]. Consequently, the findings clearly establish that school support plays a significant mediating role in the establishment of the new ecology for tourism-oriented professional education, contributing to 60.73% of the total effect. Therefore, our hypothesis receives robust support from the data.

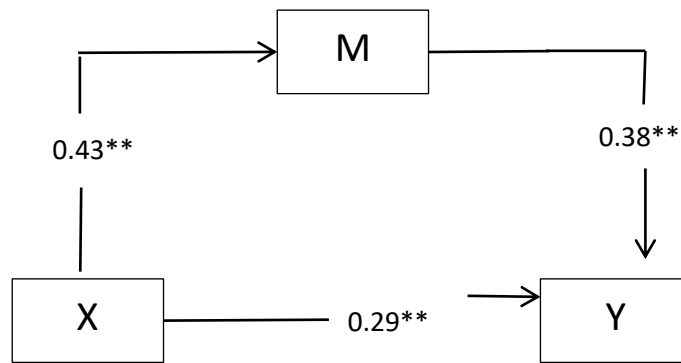


Figure 4.
Output results of overall path analysis.
Note: ** p<.01.

4.2.5. Moderate Effect Test

This study utilized the SPSS macro process, specifically Model 5, to investigate the potential moderating effect of school support on the relationship between teacher knowledge skills and student abilities. The analysis also accounted for control variables, such as gender, grade, and student background. Furthermore, the analysis took into consideration control variables, including gender, grade, and student background. Moreover, accounting for the mediating effect of school support, the results presented in Table 3 reveal a significant prediction of students' overall abilities by the interaction between teacher knowledge skills and student quality abilities ($\beta = 0.06, p < 0.05$). These findings indicate that school support positively moderates the impact of teachers on student abilities. Therefore, the hypothesis is supported. To delve deeper into the moderating effect of school support, we performed a simple slope analysis to explore how school support influences the relationship between teacher abilities and student abilities. The findings demonstrate that in schools with low levels of support, the positive impact of teacher abilities on student abilities is relatively modest. However, in schools with high levels of support, teacher abilities significantly predict higher student abilities as illustrated in Figure 5. These findings suggest that school support plays a pivotal role in magnifying the impact of teacher abilities, on student abilities. Moreover, the level of support offered by the school environment can significantly influence students' academic outcomes.

Table 3.
Schematic diagram of moderating effect of professional commitment.

Result variable	Regression equation	Regression coefficient	Significance	95%CI	
	Predictive variables	β	t	LLCI	ULCI
School support	Gender	0.03	0.88	-0.02	0.09
	Grade	0.03	2.62	0.02	0.08
	Place of origin	0.04	1.36	-0.03	0.07
	Teacher knowledge	0.05	2.93***	0.03	0.13
	Quality abilities	0.37	12.55***	0.34	0.42
	Teacher knowledge quality abilities	0.06	2.16*	0.02	0.15
R	0.58				
R2	0.37				
F	33.48				

Note: * p < 0.1 and *** p < .001.

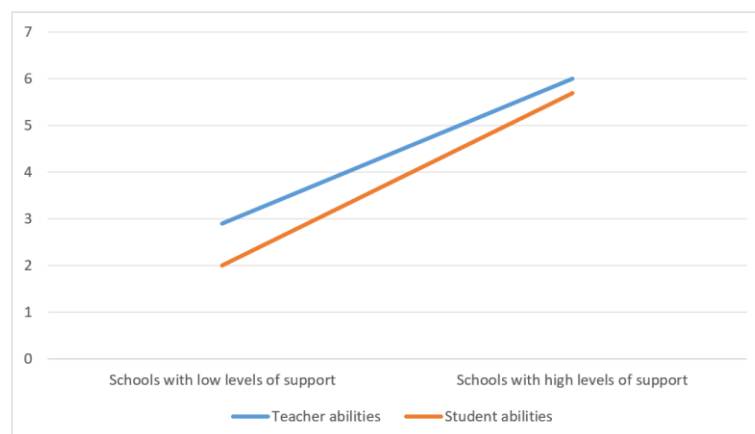


Figure 5.
Schematic diagram of the regulatory effect of professional commitment.

5. Discussion

Based on the findings mentioned above, this study aimed to explore the relationship between teacher knowledge skills, school support, and student overall abilities, as well as their impact on professional development. The results revealed that, in terms of gender, male students demonstrated higher teacher knowledge skills and quality abilities, while female students showed advantages in learning abilities, knowledge abilities, and thinking abilities. Additionally, students from rural areas reported lower levels of teacher support compared to those from urban areas, and a similar pattern was observed in learning abilities, knowledge abilities, and thinking abilities. The study also found significant differences among different grade levels in teacher support, highlighting the varying characteristics and development of students throughout their academic journey.

Through further path analysis, this research verified the mediating role of school support between teacher knowledge skills and student overall abilities. School support played a crucial role in professional development, accounting for 60.71% of the total effect as a mediating factor. Moreover, the results indicated that school support positively moderates the impact of teacher knowledge skills on student overall abilities, enhancing the influence of teachers on students' comprehensive abilities. These findings underscored the significance of school support in promoting students' overall abilities and professional development.

In conclusion, this study provides empirical evidence for understanding the relationship between teacher knowledge skills, school support, and student overall abilities [28]. The importance of school support in facilitating students' learning and development cannot be overlooked in the educational context. Therefore, to promote professional development and enhance students' comprehensive abilities, educational institutions should prioritize improving teacher quality and school support and creating a conducive learning environment for students. The construction of a new ecology for tourism-related professional education has both advantages and limitations as a response to social development and educational reforms. Through a comprehensive analysis of relevant research and practices, the following conclusions can be drawn:

5.1. Advantages of a New Ecology for Tourism-Related Professional Education

Adapting to Industry Development: Tourism is a global sunrise industry, and the construction of a new educational ecology allows educational content to closely align with industry demands, fostering talents better suited to the evolving needs of the tourism sector. The new ecological approach emphasizes educational innovation and reform, introducing new teaching methods and technologies to improve educational quality and efficiency [29]. Under the new ecology, students receive more comprehensive and practical training, cultivating versatile talents who possess problem-solving and innovative abilities, thereby enhancing students' competitiveness. The new ecology encourages resource sharing and collaboration among educational institutions, enterprises, and society, making full use of external resources to expand educational opportunities.

5.2. Limitations in a New Ecology for Tourism-Related Professional Education

The construction of a new educational ecology requires educators, students, and educational administrators to shift from traditional mindsets and embrace new educational philosophies and approaches, which may face some resistance. The new ecology necessitates corresponding support from educational system mechanisms, including evaluation systems and management mechanisms, which require reforms. Building the new educational ecology demands a high-caliber faculty with industry backgrounds and teaching capabilities, which may present certain challenges in reality. The construction of a new ecology for tourism-related professional education is a complex endeavor involving multiple reforms and adjustments, thus requiring a lengthy construction cycle and sustained efforts and investment.

In conclusion, the construction of a new ecology for tourism-related professional education offers significant advantages in adapting to industry development and improving educational quality [30]. However, it also faces challenges related to shifting traditional mindsets, educational system mechanisms, faculty development, and the prolonged construction cycle. To address these limitations, education authorities and relevant institutions should intensify support, promote educational reforms and innovations, and facilitate the continuous development and progress of the new ecology for tourism-related professional education.

5.3. Key issues of a New Ecology for Tourism-Related Professional Education

In the final analysis, the four bottlenecks emerging in the construction of the Tourism Higher Vocational Education Specialty in the process of practice are four key problems. In the future construction and development of the tourism higher vocational education specialty, we must make breakthroughs in key problems.

5.3.1. Open School Running System

With the development of tourism higher vocational education today, not only the educational concept has made a fundamental breakthrough, but also the actual school running process has made a major breakthrough. It has become normal for schools and enterprises to jointly manage and educate order classes and named classes. However, how to go higher and farther in the reform of education and teaching must break through the system problem. For example, how to explore the school running system and mechanism of mixed ownership and "encourage enterprises and public higher vocational colleges to cooperate in holding secondary colleges with the characteristics of mixed ownership and applicable public school policies". Under China's current enterprise system, it may be difficult to take this step, but only by truly realizing mixed ownership or school running majors with mixed ownership characteristics can we truly establish the seamless connection between schools and enterprises, the deep integration of industry and education, and the trained talents that can be "used, retained, and developed" by industry enterprises.

5.3.2. Specialization Issues

In China, the students who are diverted to higher vocational colleges after the college entrance examination often lack academic level, learning habits are not ideal, learning ability needs to be further enhanced, and most students have no clear life goals. Although higher vocational education places a bright vision on students, it encounters many problems in the process of higher vocational education teaching. In this case, it involves how to solve the "specialization problem". The "specialization" here includes two aspects: one is the specialization degree of tourism higher vocational education, which mainly refers to the overall specialization level compared with tourism discipline education in undergraduate stage and other higher vocational education; at the same time, it also refers to the external development process, social status, and professional organization of teachers. The second is the professional level of tourism talents, which refers to whether the trained tourism talents can seamlessly connect with the tourism industry, whether they are high-level technical talents in the tourism industry, whether they are irreplaceable, and so on.

5.3.3. Intelligent Problem

Smart tourism is being built and developed in major cities. With the emergence of personalized tourism forms such as self-help tourism, self-driving tourism, and backpacking, smart tourism is becoming more and more perfect. As tourism vocational colleges, they should be able to integrate big data into tourism and education information, establish an integrated development mechanism, realize the sharing of high-quality educational resources, open the teaching environment, promote students' autonomous learning, and establish a system composed of industry and enterprises

The expert system, composed of teaching experts, provides consulting services, industry and university research information services, and employment information services for students and cooperative enterprises through networks and big data. How can we make use of and develop the tourism resources of colleges and universities and create a "landscape school integration" smart tourism campus? How do you build a shared smart-tourism experimental training base? How do I build a professional teaching network resource platform? Combined with professional qualification standards such as "tour guide qualification certificate" and "team leader qualification certificate", how can we realize the integration of courses and certificates, improve the professional "double certificate" system, and establish a network sharing support system? How can we create an open collaborative education platform to achieve a win-win situation for schools, local governments, industrial enterprises, and students? These need to accelerate the construction of big data and realize "intelligence".

5.3.4. Enterprise Problem

The key to the "enterprise problem" is the enterprise of teachers, In the action plan for the innovative development of Higher Vocational Education (2015-2018), it is proposed to "promote high-level universities and large and medium-sized enterprises to jointly build a" double qualified "teacher training base, explore the training methods of" academic education + enterprise practical training ", improve the training mechanism of young teachers with the old, establish a teacher rotation training system, and professional teachers practice for no less than 6 months every five years"; it is clearly necessary to strengthen "professional and technical personnel and high technology".

The author argues that establishing a mixed teachers' team in higher vocational colleges, with a focus on attracting talented part-time teachers, is a practical and effective approach to addressing the challenge of constructing "double qualified" teachers. The key to success lies in the commitment and involvement of teachers in the process [31]. This is a breakthrough to solve many problems in higher vocational education. In addition, the "enterprise problem" is also reflected in the enterprise demonstration and practice of the establishment of the second-level College of Enterprise Tourism and the formulation and revision of talent plans in the real sense. The success of this initiative relies on the active involvement and substantive guidance of the professional Steering Committee. The depth and breadth of school enterprise cooperation and the integration of industry and education, and so on. We should try our best to think about extending "enterprise" to all aspects of running schools and running tourism majors and making higher vocational education truly "Vocational".

5.4. Countermeasures for the Construction of a Tourism Specialty in Higher Vocational Colleges

The contribution and significance of constructing a new ecosystem for tourism-related professional education are multifaceted. It has a positive impact on both the education field and the tourism industry. Here are several aspects regarding the contribution and significance of constructing a new ecosystem for tourism-related professional education:

5.4.1. Cultivating Talents Aligned with the Demands of the Tourism Industry

The construction of a new ecosystem for tourism-related professional education ensures a close alignment between educational content and the developmental needs of the tourism industry. It fosters the cultivation of outstanding talents who are better suited to meet the diverse demands and challenges of the tourism market. These talents possess practical and application-oriented knowledge and skills that can adapt well to the evolving needs of the tourism sector.

5.4.2. Promoting Educational Innovation and Reform

The new ecosystem encourages educational innovation and reform by introducing new teaching methods and technologies. It drives a transformation in educational approaches and enhances the quality of education. This approach stimulates students' interest and initiative in learning while cultivating their innovative spirit and practical abilities.

5.4.3. Enhancing Students' Comprehensive Qualities and Competitiveness

The construction of a new ecosystem for tourism-related professional education emphasizes the development of students' comprehensive qualities, including critical thinking, teamwork, and communication skills. These comprehensive qualities equip students with enhanced competitiveness, enabling them to tackle complex and diverse tourism-related tasks effectively in their future careers.

5.4.4. Expanding Educational Resources and Collaboration Opportunities

The new ecosystem encourages the sharing and collaboration of educational resources among universities, enterprises, and society, promoting their integrated development. It provides students with broader access to educational resources and practical opportunities, thereby enhancing their overall literacy and practical capabilities.

5.4.5. Driving the Development and Upgrading of the Tourism Industry

The construction of a new ecosystem for tourism-related professional education plays a positive role in promoting the development and upgrading of the tourism industry. The cultivation of outstanding talents in the tourism field provides a continuous source of motivation and support for the industry's quality improvement, innovative development, and sustainable growth.

6. Conclusion

In conclusion, the construction of a new ecosystem for tourism-related professional education contributes significantly to cultivating outstanding tourism talents, driving educational innovation and reform, enhancing students' comprehensive qualities and competitiveness, expanding educational resources and collaboration opportunities, and promoting the development and upgrading of the tourism industry. This initiative will lead to the cultivation of more talents that meet the demands of the tourism industry, drive sustainable development in the tourism sector, and foster a deeper integration between education and industry, making a positive contribution to the tourism industry and society as a whole.

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