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Data-Driven Analysis of Teaching Quality Impact on Graduate Employment in Higher Vocational Colleges of Hefei

Ning Wang [1], Tiamyod Pasawano[2,*], Thosporn Sangsawang[3], Matee Pigultong[4]

[1] *Vocational Education Division, Faculty of Technical Education, Rajamangala University of Technology Thanyaburi, Pathum Thani, 12110, Thailand*

[2,3,4] *Educational Technology and Communications Division, Faculty of Technical Education, Rajamangala University of Technology Thanyaburi, Pathum Thani, 12110, Thailand*

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Abstract

The objectives were to identify the influence of teaching quality in higher vocational colleges on the employment quality of graduates, and to develop instructional design through both theoretical and empirical analysis, to synthesize the relationships among teaching quality, human capital, and employment quality. In collaboration with 17 experts, they were selected through purposive sampling and involving 100 instructors within higher vocational colleges in China. The instruments using the Delphi Technique through a round questionnaire of vocational colleges' teaching quality positively influenced both graduates' human capital and employment quality. The findings revealed that vocational colleges' teaching quality positively influenced both graduates' human capital and employment quality. Vocational education has a favorable effect on employment quality, with human capital playing a crucial role in enhancing teaching quality. This paper distributed 600 questionnaires in total and collected 527 valid questionnaires, with an effective recovery rate of 87.83%. Data processing and analysis were carried out on the valid questionnaires. However, the relationship between teaching quality and employment quality is mediated by professional cognition and growth ability. These results offer important insights for vocational colleges, pointing to the crucial significance of human capital and educational quality in improving employment quality. In higher vocational colleges, the study investigates the connection between human capital, employment quality, and instructional quality. The teaching quality positively affects graduates' human capital and employment quality, according to data from Hefei grads. The link between teaching and learning is moderated by human capital. The research uses AMOS software to analyze vocational teaching variables, revealing a direct effect of higher colleges' teaching quality on graduates' employment quality and human capital. The significance level of these effects is .001, indicating a strong capacity for explanatory reasoning.

Keywords: Higher Vocational Colleges, Teaching Quality, Employment Quality

1. Introduction

Higher vocational education is a crucial component of the national talent strategy because it helps generate highly qualified technical and skilled talent that can satisfy the demands of social and economic growth demands. Higher vocational education in China has advanced significantly in recent years, increasing in scope and quality while positively influencing economic and social growth. However, it also has to deal with specific pressing issues, one of which is how to increase the employability of graduates. Employment quality is an essential sign to represent the level of personal development and social acceptance of graduates, which is also a sign to measure the training objectives and educational benefits of higher vocational education [1], [2]. However, the quality of the existing workforce is higher. China's education system highlights the scarcity of high-quality resources and unfair distribution due to exam-oriented education. It emphasizes the strategic importance of vocational education for China's future talent development and calls for national policy support for its development [3].

Five-year higher vocational education has developed into one of the significant forms of Higher Vocational Education in China. Fujian Province began offering five-year junior college programs. There was a technical labor shortage due

***Corresponding author: Tiamyod Pasawano (tiamyod@rmutt.ac.th,)**
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to the quick growth of Japan's economy. Japan's specialized colleges and universities sought out junior high school graduates to enroll in their programs, study for five years, and graduate with an associate degree.

As a result, many technical workers were produced for the growth of Japan's basic industry manufacturing industry in a short amount of time [4]. To improve the employment quality of higher vocational graduates, we need to start from many aspects, among which the most critical link is to improve the teaching quality of higher vocational colleges. Teaching quality refers to the degree to which teaching objectives are achieved through teaching activities under certain conditions. It is the core element of higher vocational education and an important factor affecting the employment quality of graduates. The teaching quality of higher vocational colleges directly determines the human capital level of graduates, and human capital is the key factor affecting the employment quality of graduates [5]. Human capital refers to intangible assets such as knowledge, skills, abilities, Etc., obtained by individuals through investment in education, training, health, Etc., which is the basis for individuals to obtain income and development in the labor market. The higher the teaching quality of higher vocational colleges, the higher the human capital level of graduates, and the higher their employment quality. It is essential to improve the teaching at higher technical colleges if you want to increase the quality of employment for graduates. The human capital level of graduates, which is the cornerstone for income and development in the labor market, is directly impacted by the quality of the teaching. Higher levels of human capital and improved employment quality are correlated with higher teaching quality. A study conducted in nine higher vocational colleges investigated the factors influencing the employability of finance and trade graduates.

To evaluate teaching quality, a data-driven approach can be employed using various methods such as multivariate modeling [6], student evaluations of teaching (SETs) [7], a combination of Analytical Hierarchy Process (AHP) and Data Envelopment Analysis (DEA) [8], and a data-driven model based on multidimensional corpus [9]. Technological advances have significantly impacted teaching methodologies in higher education. Faculty attitudes toward technology and distance education have been found to influence the integration of electronic communication in teaching [10]. Additionally, the application of deep learning and human comprehensive development theory has been evaluated to enhance innovation in higher education teaching [11]. Furthermore, contemporary information-communications technologies have resulted in numerous enhancements of the teaching process, altering traditional methods of learning and teaching [12]. The use of technological advances has also been monitored to enhance teaching methodologies, demonstrating the influence of technological advancement on conventional teaching and learning methodologies.

An interdisciplinary approach combining data science, educational theory, and labor market analysis can significantly benefit society by catalyzing greater synergy across these policy sectors [13]. Initiatives such as data science education in secondary schools aim to concretize data science and its implications for schools, fostering statistical reasoning through interdisciplinary projects [14]. Furthermore, an integrated approach to science education through history of art has been proposed, emphasizing the potential for interdisciplinary collaboration [15].

Using t-tests, rank sum tests, and chi-square tests, the researchers found that soft skills play a crucial role in career development and professional advancement. Employability is a crucial component of one's career development. The researchers focused on human development in educational settings. They carried out a quantitative study inside nine higher vocational colleges in order to explore the factors affecting the employability of finance and trade graduates in higher vocational colleges. The t-test, rank sum test, and chi-square test are used in the study's descriptive statistical analysis to evaluate the variables and show the sample structure.

Additionally, it uses exploratory factor analysis to categorize educational practice and employability. The correlations between three primary characteristics, as well as the employability and career advancement of graduates in finance and commerce, were then investigated using a multivariable linear regression model. The results indicate that soft skills [16].

Therefore, studying the impact mechanism and path of teaching quality of higher vocational colleges on the employment quality of graduates has important theoretical significance and practical value for promoting higher vocational colleges to improve teaching quality with employment as orientation, cultivating more and better technical and skilled talents, meeting the needs of national economic and social development for talents. Teaching at Guangdong Technology University is undergoing continuous development due to the advancements in education reform. This has led to more abundant teaching methods but also presents challenges. To address these, colleges must continually

improve curriculum planning, build targeted quality assurance systems, and ensure comprehensive personnel training [17].

2. Literature Review

The impact of higher vocational college teaching quality on graduate employment quality has been extensively studied in both domestic and foreign literature. These documents are primarily examined in light of the following factors:

2.1. Higher Vocational Education and Its Role

The educational system plays a crucial role in fostering practical abilities by bridging the gap between theoretical knowledge and practical skills.

1) Skill Development: Skill Development in higher vocational education aims to equip students with practical skills for specific occupations and industries, resulting in job-ready graduates.
2) Alignment with Labor Market Needs: Higher vocational education institutions collaborate with industries to design curricula that align with job market demands, ensuring graduates possess the desired skills and knowledge.
3) Diverse Program Offerings: Higher vocational education offers diverse programs across technology, healthcare, business, and arts, catering to students' diverse needs and allowing them to choose programs that align with their interests and career goals.
4) Accessibility: Higher vocational education offers greater accessibility compared to traditional four-year degree programs, requiring less time and financial investment, making it an attractive option for quick workforce entry or skill upgrading.
5) Promotion of Lifelong Learning: Lifelong learning, continuous learning, and professional development are integral components of enhancing one's learning and career prospects.
6) Regional and Local Development: Local industries play a crucial role in local development, fostering economic growth and reducing unemployment by providing skilled workforces tailored to local industries.
7) Social Mobility: Vocational education is a valuable tool for social mobility, enabling individuals from diverse backgrounds to acquire valuable skills, thereby improving their social and economic opportunities.
8) Innovation and Research: Vocational education enhances employment quality by enhancing teaching quality, thereby enhancing human capital, which is crucial for graduates' financial stability and workforce advancement.
9) Global Competitiveness: A country's competitiveness in the international economy is increased by a well-developed higher vocational education system. It enables a nation to meet the needs of developing sectors and maintain its technical leadership.

In conclusion, higher vocational education contributes to the educational environment as a flexible and dynamic element, equipping students for immediate employment while also fostering continued professional development and industry expansion [18]. It plays a crucial part in education systems all over the world by encouraging social mobility, lowering unemployment, and fostering economic development [19]. The study looks at the effects of higher and secondary vocational education and training (HVET) on China's economic growth between 1980 and 2020. The findings indicate that while a decline in HVET slows long-term economic growth, a rise in SVET accelerates it. An important moderating factor in the effects of high technology sectors on economic growth is higher vocational education. For a prosperous economic transition, the report recommends promoting higher vocational education and the equal development of high-tech industries [20].

2.2. Teaching Quality in Higher Vocational Colleges

Teaching quality at higher vocational colleges includes numerous facets of instructional procedures and contexts. For students to be effectively prepared for occupations and sectors, great teaching quality must be ensured. Here are the essential elements and factors relating to the quality of instruction in higher vocational colleges:

1) Curriculum Design: Curriculum design is crucial for effective teaching in vocational institutions, ensuring current, relevant, and useful information and skills for the workforce.
2) Pedagogical Approaches: Effective teaching in vocational colleges utilizes pedagogical approaches and strategies, ensuring students grasp theoretical concepts and develop practical skills through hands-on experiences and real-world applications [21].
3) Faculty Qualifications: Instructors' knowledge and faculty qualifications are crucial in teaching, as they effectively combine academic knowledge with industry experience to bridge the gap between theory and practice.
4) Professional Development: Teaching industry trends and fostering professional development are crucial for instructors to provide students with the best possible education.
5) Resources and Facilities: Teaching quality is significantly enhanced using technology infrastructure, which enhances practical skills and facilitates hands-on learning [22].
6) Student-Centered Approach: Effective teaching involves a student-centered approach, where instructors are responsive to students' needs and aspirations, ensuring they succeed and receive the necessary support.
7) Assessment and Feedback: Students' learning journey is guided by transparent assessment methods, ensuring progress and improvement, thereby fostering a more effective learning environment.
8) Integration of Technology: Utilizing technology in teaching enhances students' learning experience, promoting skill development through virtual simulations, online resources, and e-learning platforms.
9) Industry-Academia Collaboration: Students benefit from industry-academia collaboration, which includes guest lectures and real-world projects, exposing them to industry practices and enhancing their learning experience.
10) Quality Assurance and Accreditation: Quality assurance is crucial in ensuring the quality of educational programs, and it is essential to seek accreditation from relevant bodies to maintain this high standard.
11) Feedback Mechanisms: Regular surveys and creating channels for students to provide feedback are crucial in enhancing the quality of learning experiences.
12) Inclusive Education: Promoting inclusivity in vocational education is crucial for ensuring a diverse learning environment that caters to students with diverse backgrounds and abilities.

In higher vocational colleges, the quality of the instruction is crucial for enabling students to succeed in their chosen careers [23]. It requires an all-encompassing strategy that includes curriculum design, teaching techniques, faculty credentials, resources, and industry partnerships. Vocational colleges can aid in the success and employability of their graduates in the competitive labor market by continually aiming for good teaching quality [24].

2.3. Graduate Employability and Employment Quality

Crucial factors affecting graduate employability and employment quality are the quality of education and career options available to graduates.

1) Employment Quality: Employment quality encompasses job happiness, career possibilities, and job stability, ensuring a positive work environment that aligns with one's qualifications and talents[25] [26].
2) Alignment with Skills and Qualifications: Graduates' work requires a strong alignment of their skills and qualifications, ensuring they effectively apply their education to their current job.
3) Income and Compensation: Employment quality often includes considerations of income and compensation. Graduates who secure well-paying jobs that offer competitive salaries and benefits tend to experience higher employment quality.
4) Job Security and Stability: Stable and secure employment is an important aspect of employment quality. Graduates should feel confident in the longevity of their positions and the absence of constant job insecurity.

5) Job Satisfaction: Job satisfaction is a crucial factor in enhancing employment quality, as it ensures employees find a fulfilling job that aligns with their values and interests.

6) Career Advancement Opportunities: Career growth and advancement are crucial in one's chosen field, allowing individuals to climb the career ladder and enhance their skills.

7) Underemployment and over qualification: Over qualification refers to graduates working in jobs that do not meet their qualifications, negatively impacting the quality of employment.

8) Lifelong Learning and Adaptability: Graduates who actively engage in lifelong learning and skill development are better equipped to enhance their employability and maintain high-quality employment throughout their careers.

9) Impact of the Education System: The education system's quality significantly impacts graduate employability and quality, with curriculum relevance, pedagogical approaches, and experiential learning opportunities playing crucial roles [27].

10) Career Services and Support: Career Services and Support provide essential services to support individuals in their career journey, ensuring they are well-equipped to navigate the workforce effectively.

11) Industry Collaboration: Industry input and collaboration between educational institutions and industries are crucial for enhancing employability and skill development in the job market.

Graduate employability and employment quality are essential indicators of the quality of higher education institutions, influencing the graduates' ability to secure meaningful careers [28] [29]. Graduate employability and competence development are crucial aspects of higher education [30]. Higher education institutions are focusing on strategies to enhance these competencies, relying on innovation and collaboration practices in higher education [31].

2.4. Factors Affecting Graduate Employment Quality

Graduate job quality is influenced by personal characteristics, economic conditions, and societal conditions, requiring understanding by graduates, educational institutions, and governments for improved graduation outcomes.

1) Educational Background: The level and type of education a graduate possesses can significantly impact their employment quality [32]. Graduates with higher degrees or specialized qualifications may have access to more advanced and well-paying job opportunities.

2) Relevance of Degree: The relevance of a graduate's degree to their chosen field or industry plays a crucial role in employment quality. Graduates who enter careers closely related to their field of study tend to experience higher job satisfaction and income.

3) Skills and Competencies: The specific skills and competencies acquired during education are vital for securing and excelling in a job. Graduates with a strong skill set that aligns with the demands of the job market are more likely to find high-quality employment.

4) Networking and Connections: Networking and professional connections can open doors to job opportunities that may be private. Graduates with robust professional networks may have an advantage in finding quality employment.

5) Geographic Location: The geographic location of a graduate can significantly affect employment quality. Regions with a strong job market in the graduate's field of study offer better opportunities in terms of income, job security, and career advancement.

6) Economic Conditions: Broader economic conditions, such as economic recessions or periods of growth, can influence the availability of jobs and wage levels. Graduates who enter the job market during economic downturns may need help in securing high-quality employment.

7) Industry Trends: Graduates who are well-informed about industry trends and have skills that are in demand are more likely to find high-quality employment. Staying updated on emerging technologies and market demands is essential.

8) Internships and Work Experience: Internships and prior work experience can greatly enhance employment quality. Graduates with relevant work experience are often more attractive to employers and may have an easier time securing fulfilling jobs.

9) Soft Skills and Soft Skills: Soft skills, such as communication, problem-solving, and teamwork, are increasingly valued by employers. Graduates who possess a combination of technical skills and soft skills are better positioned for quality employment.

10) Career Planning and Job Search Strategies: Graduates who engage in effective career planning, set clear goals, and employ strategic job search techniques are more likely to find employment that aligns with their aspirations.

11) Employer Practices: Employer practices, such as fair compensation, employee benefits, and workplace culture, greatly affect employment quality. Graduates should consider these factors when evaluating job offers.

12) Government Policies: Government Policies: Employment quality may be impacted by government policies concerning minimum wage, labor regulations, and workforce development. Graduates gain from policies that support fair labor practices and job stability.

13) Cultural and Social Factors: Cultural and Social elements: Cultural and social elements, such as gender, ethnicity, and socioeconomic status, can have an impact on income levels and employment prospects. Equity requires actions to address gaps in employment quality.

Policymakers and educational institutions are working together to improve the quality of graduate employment by addressing interrelated elements and fostering awareness among graduates. Employability issues are a top political agenda in higher education, highlighting the importance of career adaptability in preparing graduates for the labor market. This study, involving 373 students, found that career adaptability mediates between self-perceived competency and self-perceived employability. Graduating students should be equipped with career management resources to transition smoothly into the current labor market. This highlights the need for higher education institutions to integrate career management training opportunities [33] [34].

2.5. The Link between Teaching Quality and Employment Quality

The essential and complex relationship that exists between high-quality instruction and high-quality employment has a direct bearing on how graduates fare in their transition from school to the workforce. The teaching substantially influences graduates' employability and the quality of final jobs in higher education institutions. Here is a look at this important link:

1) Skill Development and Relevance: Students' acquisition of applicable information and skills is directly impacted by the quality of the teaching. High-quality graduates are better equipped with the necessary, practical skills that employers are looking for in job candidates. Their employability is increased by this fit between their education and the needs of the labor market.

2) Effective teaching practices frequently incorporate comprehensive career guidance and counseling services. These programs help students determine their skills, map out their career trajectories, and make educated professional decisions. Such assistance increases the likelihood that graduates will choose their work opportunities wisely.

3) Internships and Practical Experience: Excellent instruction frequently incorporates co-op programs, internships, and practical experiences into the curriculum. These changes allow students to apply what they learn in the classroom by exposing them to actual workplaces. Graduates with real-world experience are usually more desirable to employers and find quality employment more easily.

4) Development of Soft Skills: Soft skills like communication, teamwork, problem-solving, and critical thinking are all part of good teaching. These abilities are highly regarded by businesses and greatly improve the standard of employment. Graduates with these talents cultivated during their education are more prepared to succeed in the workplace.

5) Industry-Related Curriculum: Maintaining a curriculum that reflects current trends and demands in the industry is a key component of high-quality teaching. Graduates with the most up-to-date training are more likely to find career prospects that complement their degree, which raises the standard of employment.

6) Faculty Mentorship and Industry Networks: Students can benefit greatly from the mentorship and networking possibilities offered by faculty who are well-connected within their respective sectors. Graduates who have benefited from these ties frequently find it simpler to get high-quality employment thanks to the advice and connections their professors have in the field.

7) Research and Innovation: Institutions with a strong research culture and innovative teaching methods tend to produce graduates who are adaptable and capable of solving complex problems. These graduates are often more sought-after by employers in high-quality positions.

8) Employer Partnerships: Teaching quality institutions frequently establish partnerships with employers and industry stakeholders. Such collaborations may lead to job placement programs, internships, and cooperative education opportunities, directly enhancing graduates' access to high-quality employment.

9) Continuous Learning and Adaptability: High-quality teaching encourages graduates to be lifelong learners and adaptable professionals. Graduates who are equipped with a growth mindset and a commitment to ongoing development are better prepared for career advancement and higher employment quality.

10) Ethical and Professional Standards: Teaching quality often includes an emphasis on ethical and professional standards. Graduates who understand and adhere to these standards are more likely to secure employment in organizations that prioritize ethical practices and professionalism.

The employers' needs and the competencies of university graduates are some of the major problems with competence development and graduate employability identified in the review. According to the findings, higher education institutions are focused on employing techniques to improve the skills needed by graduates to find employment. The growth of graduate employability and competence depends on higher education institutions fostering a strong sense of innovation and collaboration [31].

2.6. The Delphi Technique

The Delphi Technique is a systematic, iterative, and consensus-building procedure used to gather and synthesize expert opinions on difficult topics. In this case, it will be applied to assess the effects of vocational school graduates' development of their human capital and employment quality. To conduct Delphi research on this subject using a four-round questionnaire, follow the procedures below: Establishing the Expert Panel in Round 1, creating the initial questionnaire in Round 2, and creating the iterative questionnaire in Round 3 Rounds, Fourth Round: Depending on how Round 3 went, you can decide to hold another round to try to reach a decision or settle any outstanding issues. Final Reporting. Dissemination: Share the final report with the expert panel, relevant institutions, and the wider educational community to contribute to discussions on improving teaching quality and its impact on graduates' human capital development and employment quality in vocational colleges. The Delphi Technique, through its iterative and expert-driven approach, allows for a systematic exploration of complex topics, such as the influence of teaching quality on graduates' outcomes, while gradually building consensus among experts. Complete Reporting. Dissemination: To contribute to conversations on enhancing teaching quality and its effects on graduates' human capital development and employment quality in vocational colleges, share the final report with the expert panel, pertinent institutions, and the larger educational community. Through its iterative and expert-driven methodology, the Delphi Technique enables a systematic study of complicated subjects, such as the impact of teaching quality on graduation results, while gradually fostering expert consensus[35].

3. Method

The research technique involves a questionnaire survey to gather information on respondents' opinions, attitudes, and habits. Structural equation modeling is used to validate hypotheses and theories. In contrast, the Delphi Technique is used for consensus-building to analyze complex topics, ensuring a comprehensive understanding of the subject matter.

3.1. Round 1: Establishing the Expert Panel

Delphi's study involving diverse backgrounds in vocational education aims to enhance employment quality by examining teaching quality assessment, human capital development, and employability in various industries. Construct conceptual models and research hypotheses. Based on the literature review, this paper constructs a relationship model among the teaching quality of higher vocational colleges, graduate human capital, and employment quality and puts forward relevant research hypotheses. Identified issues of the simi structure questionnaire were basic sample statistics, descriptive statistical analysis of latent variables, and structural equation model fitness test.

3.2. Round 2: Producing the First Questionnaire

Create a List of Key Questions: Create a list of open-ended inquiries that explore the connection between the caliber of instruction provided by vocational institutions and the quality of the jobs that graduates land. Questions ought to be unprejudiced, succinct, and unambiguous. Preliminary Questions: With the help of a small group of specialists or coworkers, pretest the questions to look for any ambiguities, repetitions, or areas that may be improved. Form the First Questionnaire: Create the first-round questionnaire using the comments from the pretest, making sure it contains the improved questions. The foundation for succeeding rounds will be laid forth by this questionnaire—design and issue questionnaires. According to the conceptual model, this paper designs a questionnaire including teaching quality, human capital, employment quality, and personal characteristics. It distributes and collects it among graduates of vocational colleges in Hefei.

3.3. Round 3: Rounds of iterative questionnaires

Distribution of the Round 1 Questionnaire: Use a secure and private site to send the initial questionnaire to the expert panel. Request in-depth responses from the participants to the questions. Data Evaluation: Gather the responses, then examine the qualitative data to find patterns, themes, and areas of agreement and disagreement. Summary of Results: Explain the results of Round 1 without mentioning specific answers. Signal areas of agreement or disagreement among experts. Making of the Round 2 Questionnaire: Create a second-round questionnaire based on the Round 1 analysis. Include further inquiries that address outstanding problems, enquire about details, or probe new themes in this round. Distribution of the questionnaire from Round 2: Send the expert panel a summary of the Round 1 results together with the second-round questionnaire. Question participants. Data processing and analysis. In this paper, the collected data were cleaned, coded, entered, etc., and the reliability and validity test, descriptive statistics analysis, correlation analysis, structural equation model analysis, Etc. were carried out by using SPSS software and AMOS software to verify the research hypothesis.

3.4. Round 4: Finalizing the Consensus

Creating a third-round questionnaire that focuses on the areas where consensus still needs to be reached is the fourth round, which is when the consensus is finalized. Include inquiries intended to focus on conflicts or elicit more precise data. Distribution of the questionnaire from Round 3: Send a summary of the Round 2 results together with the third-round questionnaire to the experts. Ask for their ideas to help you clarify and assemble your thoughts. Summary and Data Analysis: Examine the Round 3 responses, paying special attention to any points of agreement that have not been resolved or enduring differences. Optional Round 4: Depending on the results of Round 3, you may have one more round to reach a decision or settle any outstanding issues.

3.5. Reporting Final Report Compilation

Write up a thorough report that summarizes each round, pointing out points of agreement and disagreement as well as any discoveries. Inferences and Suggestions: Summarize the study's findings and their implications for vocational schools, decision-makers, and other interested parties. Make suggestions based on the agreement obtained by the experts. Dissemination: To contribute to conversations on enhancing teaching quality and its effects on graduates' human capital development and employment quality in vocational colleges, share the final report with the expert panel, pertinent institutions, and the larger educational community. Through its iterative and expert-driven methodology, the Delphi Technique enables systematic study of complicated subjects, such as the impact of teaching quality on graduation results, while gradually fostering expert consensus.

Table 1. Basic Sample Statistics

Statistical content	Category	Frequency	Percentage
Gender	Male	207	39.3
	Female	320	60.7
Domicile	City	273	51.8
	Rural	254	48.2
Graduating Institution	Hefei City Management Vocational College	174	33.0
	Hefei College of Finance and Economics	116	22.0
	Hefei Early Childhood Teacher Training College	70	13.3
	Hefei Industrial Vocational Technology College	50	9.5
	Hefei Electronic Engineering Vocational College	44	8.4
	Hefei Radio and Television University	30	5.7
	Hefei Institute of Mechanical and Electrical Technology	15	2.9
	Hefei Public Transport Vocational College	12	2.3
	Hefei Wenda Computer College	6	1.1
	Hefei Public Transport Vocational School	5	0.9
	Hefei Mechanical and Electrical Vocational Technical University	5	0.9
Workplace	First-tier cities in North, Guangzhou and Shenzhen	36	6.8
	Developed cities on the south-east coast	27	5.1
	Large and medium-sized cities in the central region	86	16.3
	Large and medium-sized cities in the western region	78	14.8
	Other cities in the Western Region	183	34.7
	National Urgent Talent Areas	99	18.8
	Remote rural areas where the country urgently needs talents	18	3.4
Industry in which you work	Education	131	24.9
	Manufacturing	64	12.1
	Services	55	10.4
	Information technology industry	43	8.2
	Wholesale and retail trade	32	6.1
	Other industries	202	38.3
Nature of unit	Business units	62	11.8
	State-owned enterprises	61	11.6
	Three-funded enterprises	8	1.5
	Self-employment	17	3.2
	Other	146	27.7

Table 2. Basic Sample Statistics

		Case statistics	Minimum statistics	Maximum statistics	Average statistics	Standard deviation statistics
A. Teaching quality of higher vocational colleges	A1 Construction of hardware facilities	527	1	5	4.12	.914
	A2 Course teaching plan	527	1	5	4.1	.936
	A3 Classroom teaching level	527	1	5	4.17	.898
	A4 Construction of school style on campus	527	1	5	4.05	.964
	A5 Guidance on employment planning	527	1	5	4.04	.964
	A6 Daily affairs management	527	1	5	4.15	.913
	A7 Practical skill training	527	1	5	4.05	1.023
B. Graduate human capital	B1 Professional skills	527	1	5	2.588	1.498
	B2 Occupational cognition	527	1	5	3.569	1.231

	B3 Vocational ability	527	1	5	3.478	1.365
	B4 Develop capacity	527	1	5	4.249	1.291
C. Graduate employment quality	C1 Difficulty and ease of job hunting	527	1	5	3.559	1.068
	C2 Person and position matching	527	1	5	3.641	.859
	C3 Enterprise evaluation	527	1	5	3.811	.867
	C4 Fringe benefits	527	1	5	3.313	.739
	C5 Working conditions	527	1	5	3.405	.628
	C6 Development prospects	527	1	5	3.482	.874
	C7 Employment stability	527	1	5	3.81	.765

Table 3. Basic Sample Statistics

Index	χ2	df	χ2/df	GFI	AGFI	RMSEA	NNFI	IF	CFI
Acceptable standards	N/A	N/A	≤5	≥.08	≥.08	≤.08	≥.9	≥.9	>.9
The results of this study	628.47		4.761	.876	.839	.085	.905	.924	.923

From the results in the table above, it can be seen that except for B1 professional skills, which have the lowest average value, the average values of other latent variables are greater than the median value of 3, that is, the measured teaching quality, human capital (except professional skills), and employment quality are all above the middle level. The standard deviation of the latent variables is the largest at 1.49756 and the smallest at .62780, indicating that the teaching quality, human capital, and employment quality of the schools attended by different respondents are significantly different. Draw conclusions and recommendations. According to the results of data analysis, this paper concludes and puts forward some countermeasures and suggestions for improving the teaching quality of higher vocational colleges.

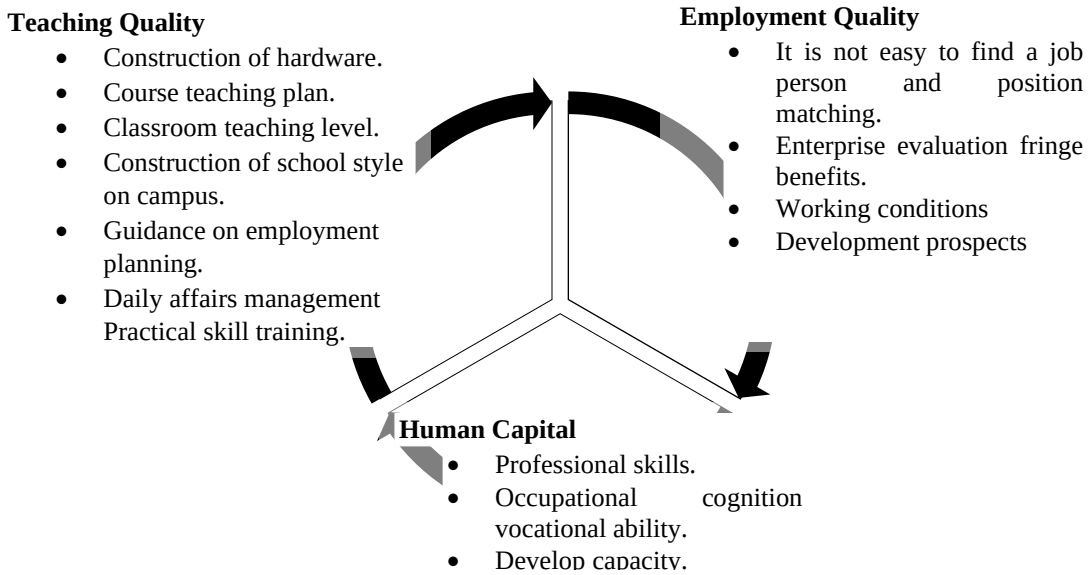

Figure 1. Theoretical Model

4. Results and Discussion

This paper distributed 600 questionnaires in total and collected 527 valid questionnaires, with an effective recovery rate of 87.83%. Data processing and analysis were carried out on the valid questionnaires, with the following results:

1) Reliability and validity test. This paper uses SPSS software to conduct reliability and validity tests on the variables in the questionnaire. The results show that the Cronbach's α coefficients of all variables are greater than 0.7, the factor loadings of all indicators are greater than .5, the average variance extracted (AVE) of all variables is greater than .5, the composite reliability (CR) of all variables is greater than .7, and the square root of AVE of each

variable is greater than the correlation coefficient between that variable and other variables, indicating that all variables have high internal consistency, convergent validity and discriminant validity.

2) Descriptive statistical analysis. This paper uses SPSS software to conduct a descriptive statistical analysis of the variables in the questionnaire. The results show that the respondents' overall evaluation of teaching quality, human capital, and employment quality of higher vocational colleges are above the medium level, among which employment quality evaluation is the highest and teaching quality evaluation is the lowest; the respondents are most satisfied with teacher quality in teaching quality, and least satisfied with teaching resources; the strongest in human capital is professional skills, and the weakest is innovation ability; the highest in employment quality is job matching degree, and the lowest is income level.

3) Correlation analysis. This paper uses SPSS software to conduct correlation analysis on the variables in the questionnaire. The results show that the teaching quality of higher vocational colleges is significantly positively correlated with the human capital of graduates; the human capital of graduates is significantly positively correlated with employment quality; the teaching quality of higher vocational colleges is significantly positively correlated with employment quality.

4) Structural equation model analysis. This paper uses AMOS software to conduct a structural equation model analysis on the variables in the questionnaire. The results show that the fit indexes of the model all reach a good level, indicating that the model has a good fit effect; the path coefficients in the model all reach a significant level, indicating that the model has a strong explanatory ability. Specifically, the direct effect of teaching quality of higher vocational colleges on employment quality of graduates is .21, with a significance level of .001; the direct effect of teaching quality of higher vocational colleges on human capital of graduates is .63, with a significance level of .001; the direct effect of human capital of graduates on employment quality is .52, with a significance level of .001; the indirect effect of teaching quality of higher vocational colleges on employment quality of graduates is .33, with a significance level of .001; and the total effect of teaching quality of higher vocational colleges on employment quality of graduates is 0.54, with a significance level of 0.001. These results verify the research hypotheses proposed in this paper and indicate that human capital plays a partial mediating role between teaching quality and employment quality of higher vocational colleges.

5. Conclusion

This paper takes the higher vocational colleges in Hefei as an example, takes the graduates as the research object, analyzes from two aspects of theory and demonstration, and discusses the mechanism and path of the impact of the teaching quality of higher vocational colleges on the employment quality of graduates. The main conclusions of this paper are as follows:

1) The teaching quality of higher vocational colleges has a significant positive impact on the employment quality of graduates, indicating that higher vocational colleges have improved the core competitiveness of graduates by providing high-quality educational services, thus improving their employment in the labor market: matching and adaptability.

2) The human capital of graduates has a very significant positive impact on the quality of employment, indicating that the intangible assets such as knowledge, skills, and abilities acquired by graduates through education in higher vocational colleges are the key to their income and employment in the labor market—the basis for development.

3) The teaching quality of higher vocational colleges has a significant positive impact on human capital, indicating that higher vocational colleges have effectively promoted the human capital of graduates through measures such as improving teaching conditions, optimizing teaching content, innovating teaching methods, and strengthening teacher construction: capital formation and promotion.

4) Human capital plays a partial intermediary role between the teaching quality of higher vocational colleges and the employment quality of graduates, indicating that the teaching quality of higher vocational colleges not only directly affects the employment quality of graduates but also indirectly affects the employment quality of graduates by increasing the investment in the human capital of graduates. Affects the quality of their employment.

6. Declarations

6.1. Author Contributions

Conceptualization: N.W. and T.P.; Methodology: T.P.; Software: N.W.; Validation: N.W. and T.P.; Formal Analysis: N.W. and T.P.; Investigation: T.S.; Resources: T.S.; Data Curation: T.S.; Writing Original Draft Preparation: T.S. and N.W.; Writing Review and Editing: T.S. and N.W.; Visualization: N.W.; All authors have read and agreed to the published version of the manuscript.

6.2. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

6.3. Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

6.4. Institutional Review Board Statement

Not applicable.

6.5. Informed Consent Statement

Not applicable.

6.6. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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