

Current Situation and Solutions for Developing Vocational Education: A Case Study in Khanh Hoa Province, Vietnam

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Abstract

This research aims to analyze and evaluate the current state and propose solutions for the development of vocational education in Khanh Hoa province. During the implementation process, the research team employed a survey method using questionnaires applied to three groups: vocational education institutions, enterprises, and workers in Khanh Hoa province. The study identifies the current training outcomes of vocational education institutions, assesses the extent to which enterprises' needs for trained workers are met, and proposes solutions for the development of vocational education in Khanh Hoa province up to 2050

Keywords: Vocational Education and Training (VET), Employees, Enterprises, Students.

1. Introduction

In recent years, the system of vocational education institutions in Khanh Hoa province has developed in scale; innovated in objectives, content, and training programs; and focused on training and fostering teachers, management staff, and investing in facilities and vocational training equipment. Public vocational education institutions have received investments and achieved many positive results in training and supplying skilled labor to meet the needs of economic and social development, contributing to increasing the rate of trained labor in Khanh Hoa province. According to the World Bank (2024) [1], investments in vocational education and training have shown significant returns in terms of skilled labor supply and economic development.

The planning for Khanh Hoa province for the period 2021–2030, with a vision to 2050, has set the following goals: by 2030, the rate of trained labor will reach 90%, and the rate of labor with degrees and certificates will reach 40%. The labor distribution will be approximately 18-19% in agriculture, forestry, and fisheries, 30-31% in industry and construction, and 50-51% in services. Additionally, it aims to create breakthroughs in human resource development, especially high-quality human resources, particularly for key sectors such as tourism, processing and manufacturing technology, logistics services, seaports, fisheries and fishery logistics, and information technology. UNESCO (2022) [2] emphasizes the importance of transforming technical and vocational education and training (TVET) to ensure successful and just transitions in the labor market.

This article presents the results of a case study, providing an overall picture of the current state of vocational training. It serves as a basis for proposing solutions to develop vocational education to improve the quality and effectiveness of vocational training in the province in general, and vocational education institutions in particular, while meeting the requirements for technical and service labor training in the era of Industry 4.0,

ensuring the human resources for the socio-economic development of Khanh Hoa province. Pilz (2017) [3] highlights that vocational education and training systems must adapt to economic crises and evolving labor market demands to remain effective. Tucker (2019) [4] also points out that learning from other countries can help improve vocational education systems, especially in the context of globalization and international competition. Cedefop (2020) [5] has studied the changing nature and role of vocational education and training in Europe, emphasizing the importance of adapting to new labor market requirements.

2. Methodology, Methods, Scope, Content, and Survey Sample

The survey aims to: (1) Analyze and evaluate the current state of vocational training activities in vocational education institutions and the extent to which enterprises' needs for trained labor are met in Khanh Hoa province; (2) Use the survey results as a basis to propose solutions for the development of vocational education in Khanh Hoa province up to 2050.

The survey employs both qualitative and quantitative methods, combined with questionnaires. The quantitative method is used to collect information on the number of workers, the names and quantities of new skills, and the extent to which enterprises' needs are met. The qualitative method (direct interviews at enterprises, vocational education management agencies, or online/telephone interviews) is used to gather information on trends and projected future skill needs of enterprises, and the development orientation of the vocational education system.

The research team conducted surveys on vocational education institutions, enterprises, and workers in Khanh Hoa province with the following content:

1. The current use of trained labor by enterprises in Khanh Hoa province, enterprises' assessments of the extent to

which trained labor meets their needs, and the future demand for trained labor (in terms of quantity, structure, industry, etc.).

2. The technical expertise of trained labor (training industry, training level), income, working hours, job position, training/retraining needs; assessments of school training and other related issues; the extent to which current job skills/competencies meet job requirements.
3. The scale of training, training industries of vocational education institutions, the employment rate of graduates; facilities, equipment, training programs, and curricula of vocational education institutions, and the situation of cooperation with enterprises.

Regarding the survey sample, the research team surveyed 20 enterprises with a workforce of 100 or more and 20 vocational

education institutions, including vocational education centers, secondary schools, and colleges. At the enterprises, 200 workers were surveyed using questionnaires.

2.1. Vocational Education Development in Khanh Hoa Province (2016-2023)

2.2.1. Regarding the Network of Vocational Education Institutions

As of December 31, 2023, the total number of vocational education institutions in Khanh Hoa province is 33, including: 4 colleges (accounting for 12%); 10 secondary schools (accounting for 30%); 6 vocational education centers (accounting for 18%); and 13 other institutions participating in vocational training (accounting for 39%) (Figure 1).

Source: Department of Labor, Invalids and Social Affairs of Khanh Hoa Province

Unit: %

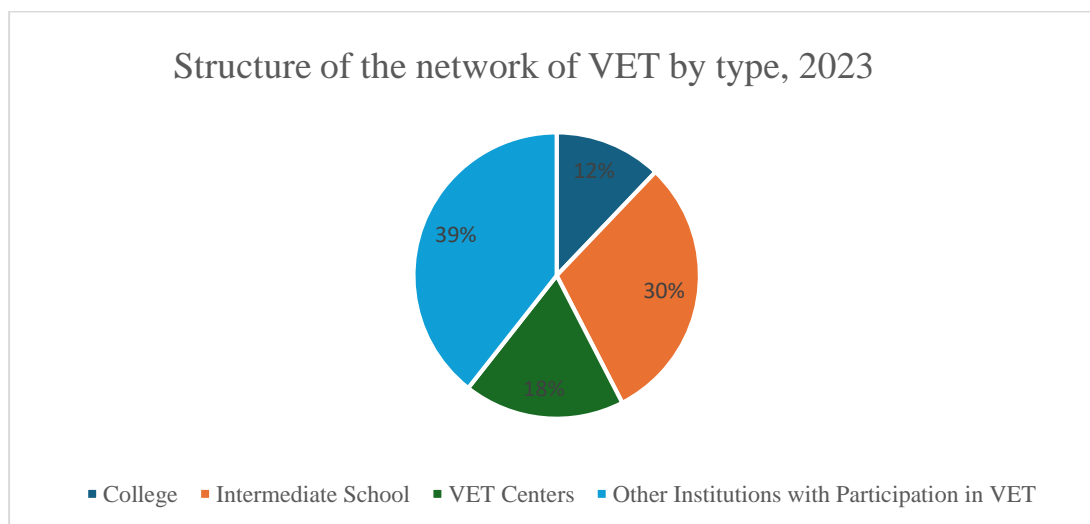


Figure 1: Structure of the Network of Vocational Education Institutions by Type in 2023.

Classification of Vocational Education Institutions in Khanh Hoa Province by Ownership: Includes 13 public vocational education institutions (of which 12 are managed by the local

government and 1 by the central government) and 20 non-public vocational education institutions. (Figure 2).

Source: Department of Labor, Invalids and Social Affairs of Khanh Hoa Province

Unit: Institution

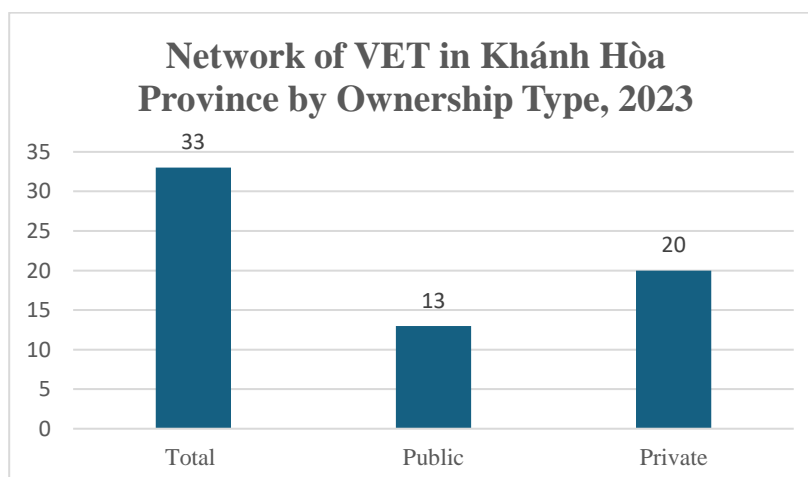


Figure 2: Network of VET in Khanh Hoa Province by Ownership.

2.2.2. Enrollment and Training Results

From 2016 to 2023, the entire province enrolled 226,012 people in vocational training programs, including 18,753 college

students and 28,524 secondary school students (accounting for 21%); and 178,735 people in primary and regular training programs (accounting for 79%) (Table 1).

Source: Department of Labor, Invalids and Social Affairs of Khanh Hoa Province
Unit: Number of People

Year / Level	2016	2017	2018	2019	2020	2021	2022	2023	Total for the Period
College	1,426	2,005	3,653	3,610	2,223	2,104	1,871	1,861	18,753
Secondary School	2,454	3,216	3,404	4,126	4,180	3,839	3,554	3,751	28,524
Primary and Vocational Training under 3 Months	21,109	20,600	19,878	21,350	22,947	23,503	24,125	25,223	178,735
Total	24,989	25,821	26,935	29,086	29,350	29,446	29,550	30,835	226,012

Table 1 shows that the total enrollment results for the period 2016-2023 in Khanh Hoa province have increased annually. However, the trends in training levels vary, specifically:

- Enrollment and training at the primary level and vocational training under 3 months decreased during 2016-2018, but increased during 2018-2023, with annual fluctuations of about 500-1000 people per year.
- Conversely, for primary level and vocational training under 3 months, the enrollment results for secondary and college levels increased during 2016-2019 but decreased during 2020-2023.

Enrollment in training by economic sector: Enrollment at the college and secondary levels in service-tourism sectors accounted for 40%; enrollment in Electrical-Electronics-Refrigeration Engineering sectors accounted for 15%; enrollment in Mechanical-Automotive Technology sectors accounted for 15%; enrollment in Information Technology sectors accounted for 10%; enrollment in Medical-Pharmaceutical sectors accounted for 5%; and enrollment in other sectors accounted for 15%. (Figure 3)

Source: Department of Labor, Invalids and Social Affairs of Khanh Hoa Province
Unit: %

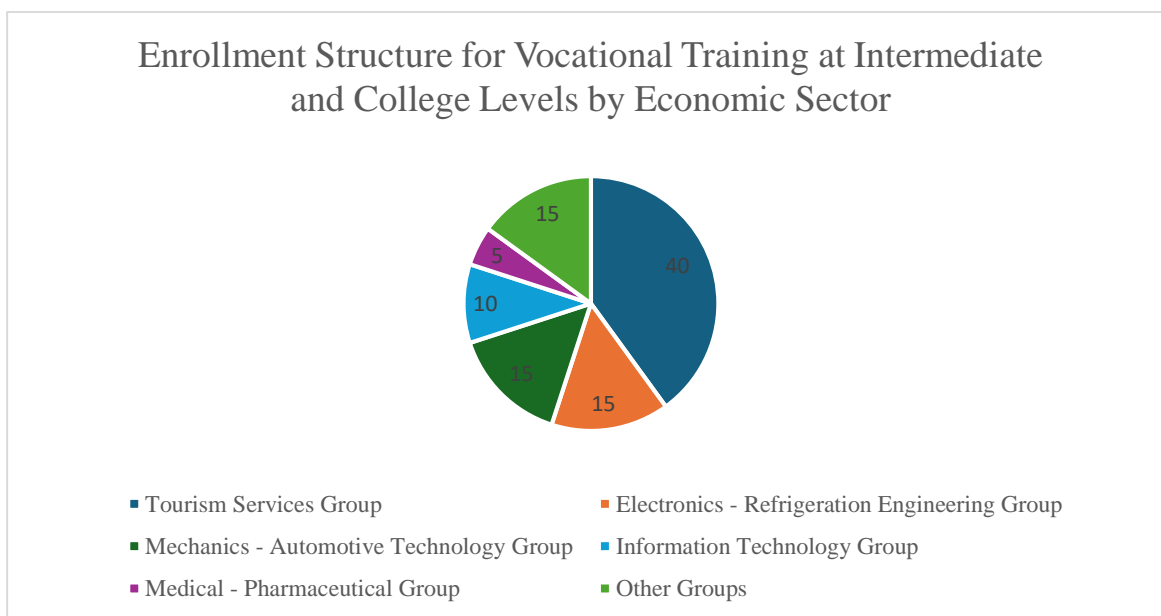


Figure 3: Structure of Vocational Training Enrollment at Secondary and College Levels by Economic Sector.

According to the assessment of vocational education institutions, the rate of meeting enterprise requirements for graduates from colleges is quite high, with an average rate of 90.3% meeting the requirements. The average rate of meeting

enterprise requirements for graduates from secondary schools and vocational education centers is 73.3% and 69%, respectively, as shown in Figure 4.

Source: Research Team's Survey Results

Unit: %

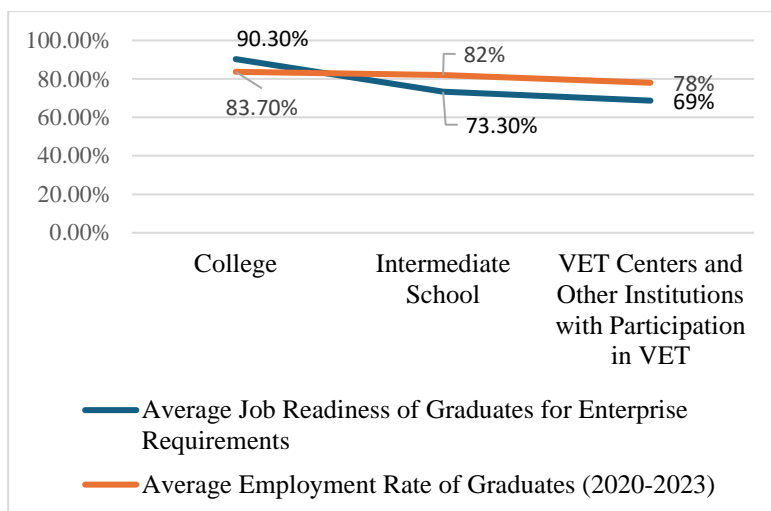


Figure 4: Employment Rate and Degree of Meeting Enterprise Requirements of Students after Graduation

Figure 4 shows that the average employment rate of graduates from vocational education institutions in 2020-2023 is 81.2%. Specifically, the employment rate for college graduates is 83.7%, for secondary school graduates is 82%, and for graduates from vocational education centres and other institutions participating in vocational training is 78%. Some occupations that vocational education institutions consider easy to find jobs in include:

- Refrigeration and air conditioning engineering
- Culinary arts, head chef, bartending
- Restaurant services, receptionist
- Pharmacy, general practitioner
- Nursing, dental prosthetics

On the other hand, some occupations are more challenging to find jobs in, such as:

- Accounting, Finance and Banking
- Mechanical Engineering

Source: Research Team's Survey Results

Unit: %

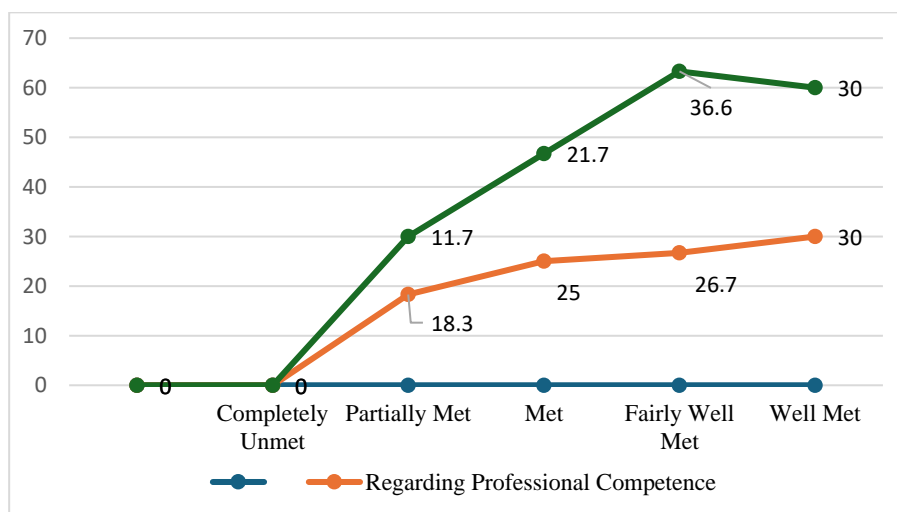


Figure 5: Degree to Which Workers Meet Enterprise Requirements for Professional Competency, Occupational Safety Skills, and Work Health.

2.2.3. Current State of the Teaching Staff

- In terms of quantity: The total number of teachers at vocational education institutions in the province is 803, of which 303 are at colleges (accounting for 37.7%), 202 are at secondary schools (accounting for 25.2%), and 298 are at vocational education centers (accounting for 37.1%).
- In terms of quality: The majority of teachers hold a university degree, with 446 individuals (accounting for 55.4%). There are 7 PhDs (accounting for 0.9%), 126 master’s degree holders (accounting for 15.7%), and 224 individuals with university (accounting for 55.4%). (Figure 6).

Source: Department of Labor, Invalids and Social Affairs of Khanh Hoa Province

Unit: %

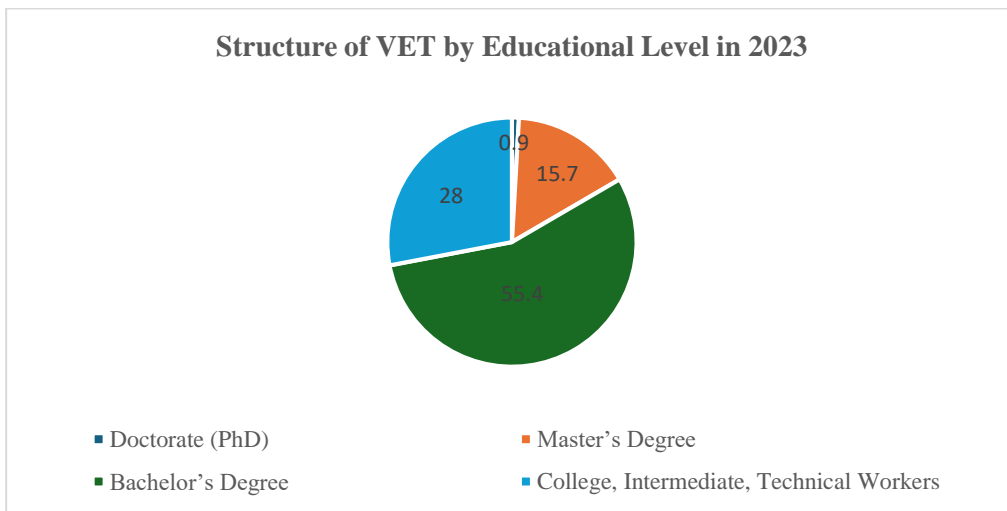


Figure 6: Structure of VET’s Teachers by Training Level in 2023.

Most teachers meet the standards for professional qualifications and pedagogical skills as required. However, some VET institutions still lack teaching staff, particularly in fields such as Automotive Technology, Refrigeration and Air Conditioning Engineering, and Industrial Sewing.

Training and Professional Development of Teaching Staff. In recent years, training and professional development efforts have significantly contributed to enhancing the capabilities of VET teachers and educational management staff, ensuring professional standards and meeting teaching requirements at VET institutions, specifically:

- Training for national vocational skills assessment for 524 teachers;
- Training for national vocational skills assessment for 524 teachers;
- Training in IT application skills for 100 teachers;
- Workshops on implementing quality assurance systems for 100 teachers and educational management staff;
- Training in student management at VET institutions for 36 teachers and management staff;
- Training in teaching record management for 26 teachers;
- Training in curriculum and teaching material development for 120 teachers;
- Training in social work knowledge in schools for 120 teachers and management staff;
- Organizing pedagogical training for highly skilled workers in enterprises to qualify them for participation in training activities.

2.2.4. Current Status of Investment in Facilities and Training Equipment

Regarding the land area for building VET institutions: The total planned land area for VET institutions in the province is 1,129,374 m², including 29,552 m² for

theoretical classrooms, 65,541 m² for practical workshops, 84,792 m² for administrative buildings, and 24,674 m² for dormitories.

Regarding facility standards, VET institutions in the province have 288 theoretical classrooms, 245 practical workshops and laboratories, with a total land use area of 113 hectares. The facilities and training equipment of public colleges and secondary schools are annually invested in, repaired, and newly purchased. Training equipment for key occupations is procured from the National Target Program on Employment, Occupational Safety, and Vocational Training for the 2011-2015 period and the “Innovation and Quality Improvement of Vocational Education” project. Compared to the minimum equipment list of the Ministry of Labor, Invalids and Social Affairs or training needs, most occupations at colleges meet 100% of the equipment requirements. Some occupations meet 90%. However, the training equipment at Khanh Hoa Medical College is still lacking.

2.2.5. Current Status of Policies Supporting Vocational Education Development

From 2016 to 2023, VET institutions in Khanh Hoa province have been developed with investments from various sources, including the central budget, provincial budget, revenues from public service units, and private enterprises.

To encourage enterprises to participate in vocational training socialization activities, Khanh Hoa province has implemented policies for land, house, and infrastructure rent exemptions and reductions for investment projects in the vocational education sector. However, enterprise participation in vocational education investment remains low, with the primary investment source being the state budget.

2.2.6. Average Salary and Recruitment Difficulty for Vocationally Trained Workers

According to the research group’s survey results, the average salary that businesses pay for workers with college-level qualifications is 8.9 million VND/month, for intermediate-level

qualifications is 6.7 million VND/month, and for primary-level qualifications, vocational training under 3 months, and unskilled workers, the average salaries are 5.8 million VND/month and 5.4 million VND/month, respectively. (Figure 7).

Source: Research Team’s Survey Results
Unit: Million VND

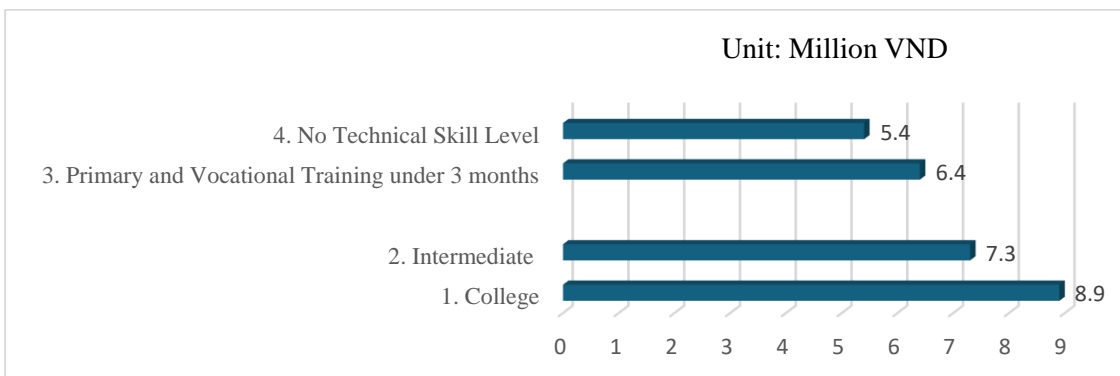


Figure 7: The average salary that businesses pay for workers at their enterprises

Businesses also reported facing some difficulties in recruiting vocationally trained workers. In Khanh Hoa province, there is an insufficient number of vocationally trained workers in the fields needed by businesses. Additionally, the skill levels of vocationally trained workers do not meet the requirements of businesses. Furthermore, the benefits offered by businesses are not attractive enough to draw workers, which is another reason why businesses find it difficult to recruit vocationally trained workers in the province.

Source: Research Team’s Survey Results
Unit: %

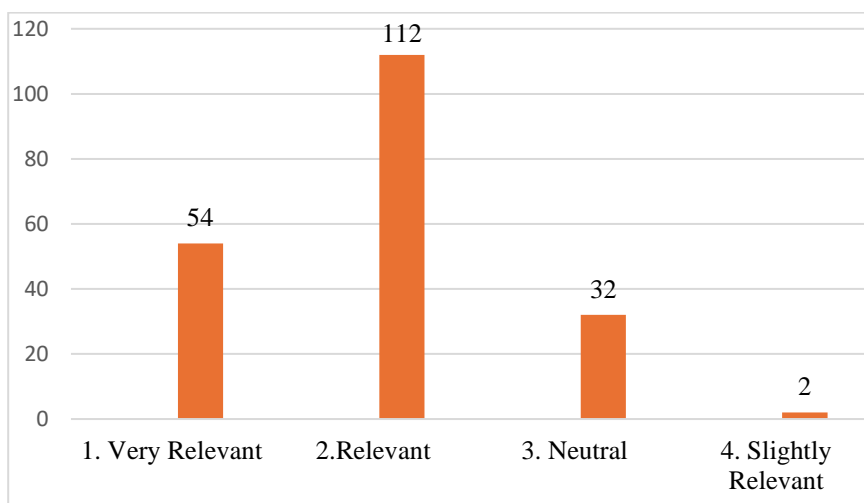


Figure 8: Suitability of Trained Profession Compared to Current Job.

2.2.9. Workers’ Evaluation of Job Suitability and VET Institutions

The survey results shown in Figure 6 indicate that 116 workers (83%) surveyed believe their current job is suitable or very suitable for the profession they were trained in, while 34 workers (17%) find their current job to be average or less suitable for their trained profession. (Figure 8).

Regarding the evaluation of the VET institutions they attended, more than 80% of workers rated the teaching staff, training content, and teaching methods as good or very good.

Table 4: Evaluation of VET Institutions Attended

Source: Research Group Survey Results

Unit: %

Content	Very Good (%)	Good (%)	Average (%)	Poor (%)	Very Poor (%)
1. Teaching staff	23	66	11	0	0
2. Training content	17	64	19	0	0
3. Internship places	16.1	58.3	25.3	0.3	0
4. Teaching methods	18	59	23	0	0
5. Classrooms and practical rooms	14	55	30	1	0
6. Learning equipment	13	55	31	1	0
7. Dormitories, sports areas, canteens, libraries, healthcare	11	45	40	3	1
8. Student support services (career guidance, job placement, etc.)	11	47	39	2	1
9. Evaluation of learning outcomes	14.2	57.8	28	0	0
10. Extracurricular activities	10	44	44	1	1

According to workers, extracurricular activities, student support services, dormitories, sports areas, canteens, libraries, and healthcare are areas that VET institutions need to pay more attention to and improve in the future.

2.2.10. Students' Evaluation of VET Institutions

The research group conducted a survey of 600 students from secondary and college-level VET institutions in Khanh Hoa province. The results show that 64% of students believe the current ratio of theory to practice is appropriate; 17% think there is too much theory, and nearly 10% think there is too much practice. (Figure 9)

Source: Research Group Survey Results.

Unit: Students

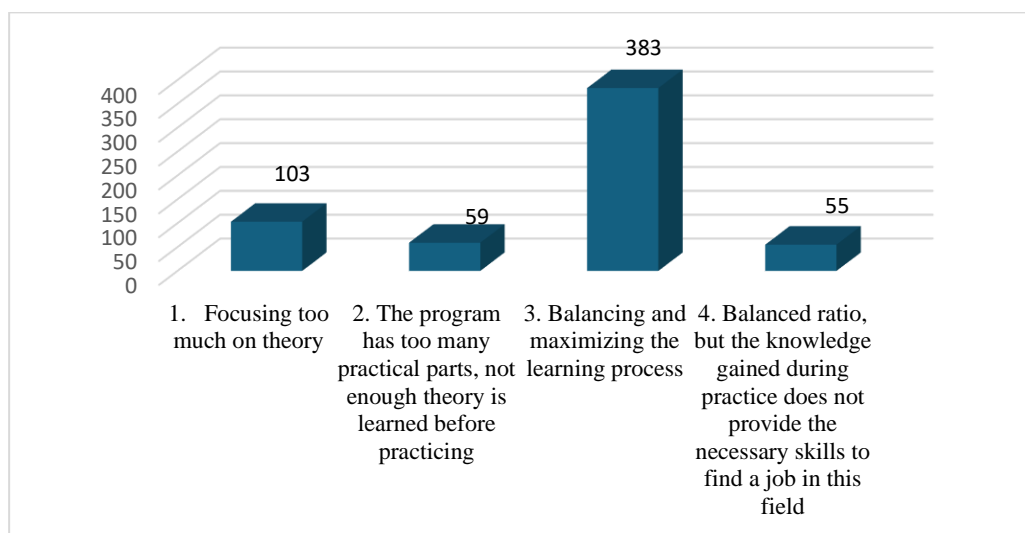


Figure 9: Evaluation of the Average Ratio of Theory to Practice in the Curriculum

3. Conclusion and Recommendations

The survey results show:

- The facilities and training equipment meet the learning needs of students, significantly contributing to attracting students to vocational training. The teaching staff is carefully recruited and trained to meet standards. The training programs are developed and updated to comply with regulations and meet business needs.
- VET institutions in the province have implemented various measures to improve the quality of vocational education

and enhance the effectiveness of job placement and student recruitment. They have fully implemented vocational training support policies at all levels for workers.

- Enrollment targets have been met, especially at the intermediate level, with increasing enrollment and improved training quality. The employment rate of graduates is high. The training structure is adjusted according to the labor structure in economic sectors and labor market demands.

However, the fourth industrial revolution has significantly impacted the job market in Khanh Hoa. The province is restructuring its economy towards a dual development model (digital economy and green economy). This will lead to economic restructuring and labor structure shifts. Many occupations in which Khanh Hoa has had a competitive advantage will disappear, and new occupations related to science and technology will emerge. The number of workers in the industrial and service sectors will increase, while the number of agricultural workers will decrease. There will be a shift of labor from low-productivity areas to high-productivity areas and a rapid increase in demand for highly skilled and intermediate-level technical workers in the market. Therefore, to meet the diverse needs of the labor market, the people, and the increasing demands for the quantity, structure, and quality of skilled labor in the future, the VET system in Khanh Hoa province needs to adapt.

Based on the research findings and survey results, the research group proposes several solutions for developing the VET system in Khanh Hoa province by 2050, specifically:

4. Solutions for Developing the VET System in Khanh Hoa Province by 2050

4.1. Enhancing the Capacity, Effectiveness, and Efficiency of State Management in Vocational Education

Based on state policies, improve the mechanisms and policies for VET teachers and management staff; policies for learners and VET institutions in the province. The province should focus on improving the quality of teaching staff through long-term planning, succession planning, and quality stratification; linking recruitment with training and professional development, both domestically and internationally; and innovating incentive policies to create a conducive working environment for teachers, especially those training in key occupations of the province. According to Billett (2020), enhancing the standing of vocational education and the occupations it serves is crucial for improving the overall quality and effectiveness of VET systems.

Establish mechanisms to link VET activities with the province's socio-economic development programs and each locality, contributing to labor and economic structure shifts, increasing sustainable employment opportunities for workers.

Improve mechanisms and policies for businesses participating in VET activities, based on rights, responsibilities, and benefits; establish standards and incentive policies, including recognition for skilled workers, technicians, engineers in businesses, and artisans in craft villages.

Review and supplement provincial policies to support training and professional development in technical skills, vocational skills, and soft skills for workers in small and medium-sized enterprises in the province.

Amend and supplement policies to support and remove barriers for disadvantaged groups, especially poor rural workers, when participating in vocational training courses, such as organizing mobile training courses/classes, applying IT to open online classes where conditions permit; providing travel allowances for participants; supporting VET institutions involved in training these groups.

Improve mechanisms and policies to promote the streaming of students after lower secondary and upper secondary education into VET, including mechanisms to create "push" (examination, quality assessment mechanisms) and "pull" (improving training quality, enhancing the status of VET, VET institutions, and recruitment and employment mechanisms).

Increase resources and prioritize state budget allocation for training high-quality human resources in key and strategic occupations.

4.2. Development and Training of Teachers, Artisans, Experts, and Trainers

Develop outstanding priority policies for recruiting, utilizing, remunerating, and attracting artisans, experts, scientists, skilled workers, vocational trainers, enterprise trainers, and managers from within and outside the province to work at vocational education and training institutions. According to Carlsson and Willermark (2023) [7], effective recruitment and retention policies are essential for maintaining a high-quality vocational education workforce.

Innovate the content and training programs, professional skills training, and regular professional development programs for teachers, managers, and enterprise trainers based on a competency-based approach, emphasizing the update of green skills, digital skills, and prioritizing key, spearhead, and new occupations. Aim to develop at least 10 training programs and organize at least 10 new technology training classes for teachers annually. The International Labour Organization (ILO) (2022) [8] highlights the importance of continuous professional development and the integration of new skills to keep pace with technological advancements.

Develop software to manage, monitor, and provide training courses for teachers, record and issue digital certificates. The use of digital tools in managing and delivering training programs can enhance the efficiency and effectiveness of vocational education, as noted by Carlsson and Willermark (2023) [7].

Increase local budget to support the training and development of teachers, prioritizing those teaching in specific, key, and spearhead fields. Billett (2020) [9] emphasizes the need for adequate funding to support the professional development of vocational education teachers.

4.3. Development of Training Programs and Innovation in Training Methods

Innovate the process and methods of developing training programs towards openness, flexibility, and modularity, based on credits and equivalent conversions, meeting output standards and minimum learning volumes, adapting to technological changes in the context of the 4th Industrial Revolution. According to Shi and Bangpan (2022) [10], innovation in TVET is essential for adapting to rapid technological changes and ensuring the relevance of training programs.

Develop training programs for new occupations, occupations related to IT, AI, new technology applications, future skills to absorb the achievements of the 4th Industrial Revolution, green occupations, suitable to the needs of enterprises and the labor market; encourage and facilitate the development of joint training programs between high-quality colleges in Khanh Hoa and advanced foreign schools so that learners can receive dual

degrees from Vietnam and abroad or foreign graduation certificates. According to Budhrani, D'Amico, and Espiritu (2023) [11], developing skilled workers through TVET programs that align with industry needs is crucial for economic growth.

Diversify training methods with strong application of IT (direct training, online training; combining both direct and online). Promote the implementation of school-enterprise linkages where enterprises directly collaborate with vocational education institutions to develop and implement training programs. The OECD (2023) [12] emphasizes the importance of diverse and flexible training methods to meet the evolving needs of the labor market.

Allocate budget resources to support schools in organizing and developing training programs, high-quality training programs, training materials, etc., to ensure and improve the quality and effectiveness of training. Effective resource allocation is essential for the sustainability and success of vocational education programs.

4.4. Strengthening Cooperation with Enterprises to Improve Training Quality

Diversify activities and forms of cooperation between vocational education institutions and enterprises to improve training quality. Coordinate with enterprises to organize training, retraining, and skill enhancement for workers in enterprises through an order mechanism according to the skills and expertise required by enterprises. Enterprises and vocational education institutions should coordinate to develop annual retraining and regular training plans for enterprise workers. According to Hu, Zheng, and Liu (2023), effective school-enterprise cooperation is essential for developing skilled and applied talents.

Innovate practical activities in vocational education institutions. Emphasize cooperation in sending students for internships and practical training at enterprises, moving towards building "enterprise semesters," helping students improve their skills, practice their profession, and experience real work. Arinaitwe and Sannerud (2019) [13] highlight the importance of institutional-workplace collaboration in matching skills provision to the needs of enterprises.

4.5. Investment in Training Facilities and Equipment

The provincial budget focuses on investing in public schools, especially high-quality colleges, and investing in intermediate schools in the western region of the province.

Continue to invest in facilities and equipment for occupations: Industrial Electricity, Information Technology (software applications), Automotive Technology; Refrigeration and Air Conditioning Technology, Culinary Arts, Hotel Management, Metal Cutting.

Invest in facilities and equipment to open 05 new "fields, occupational groups" including: renewable energy; Supply Chain Management and Logistics; Semiconductor Manufacturing Technology; Food Technology; Tourism and Personal Services.

4.6. Promoting International Cooperation

Promote international cooperation, attract foreign investment to establish foreign-invested colleges; link training between

colleges and intermediate schools in the province with vocational training institutions in developed countries to train human resources to meet the domestic and international labor market. According to Li and Pilz (2023) [14], international cooperation in vocational education can significantly enhance the quality and relevance of training programs by incorporating global best practices and standards¹. Mahapatra and Ravichandran (2023) [15] also emphasize the importance of international collaborations in preparing students for the global workforce and closing the skills gap.

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