

Survey Report

Quality of Technical and Vocational Education and Training: Perceptions of Enterprises in Hanoi and Surrounding Provinces

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List of Acronyms

CNC	Computer Numerical Control
FDI	Foreign Direct Investment
HAUI	Hanoi University of Industry
HCMC	Ho Chi Minh City
JBAH	Japan Business Association in Ho Chi Minh City
JICA	Japan International Cooperation Agency
NEU	National Economics University
PLC	Programmable Logic Controller
SME	Small and Medium Enterprise
TNI	Thai-Nichi Institute of Technology
TVET	Technical and Vocational Education and Training
UNIDO	United Nations Industrial Development Organization
VDF	Vietnam Development Forum
VJC	Vietnam Japan Center
VJCC	Vietnam-Japan Cooperation Center
VSIP	Vietnam Singapore Industrial Park

Executive Summary

Seventy-six manufacturers were surveyed to gain an understanding of how they evaluate technical and vocational education and training (TVET) programs in Vietnam. The manufacturing enterprises surveyed are in the electrical and electronic, motorcycle and automotive and other mechanical sectors in Hanoi and its vicinity. Regarding the breakdown by ownership, 48.7% are Vietnamese enterprises; 31.6% are Japanese; and 19.7% are other foreign-invested enterprises.

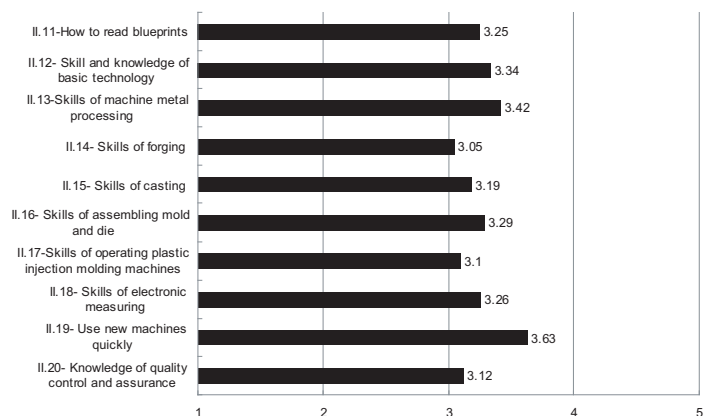
Regarding general job ability, results of the survey indicated that TVET graduates are good at following company rules and operational standards, but they are not highly evaluated in production-site management skills. It is often said that TVET graduates do not actively improve operation and their work using specific techniques such as kaizen or make their workplace clean and efficient. Also, evaluation on team workability is relatively low.

The results from the section on technical skills indicate that TVET graduates tend to learn how to use new machines quickly. The evaluation on specific technical skills such as plastic mold injection, casting and forging are not very high. Many Japanese enterprises said that TVET graduates lack basic engineering knowledge and skills, such as blueprint reading, while some Vietnamese enterprises commented that they wanted to recruit students with specific skills. Many enterprises suggested that TVET institutions should interact with enterprises more actively.

The main factors that influence skill development, such as quality of students, are TVET schools, enterprises, society and culture and the relationship among them. Among the various levels of TVET institutions, college-level and secondary-level education is important for supplying competent production engineers and technicians who become the core of

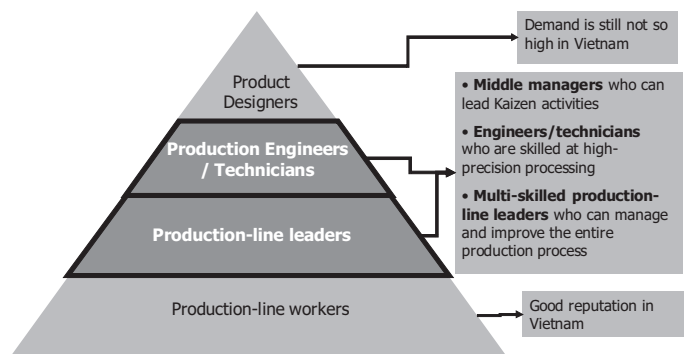
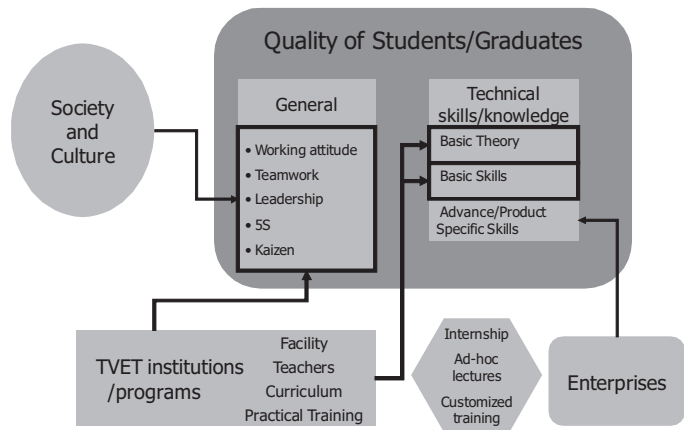
Sector	No. of Enterprises	%
1. Electrical and electronics	24	31.6
2. Automobile and motorcycle	14	18.4
3. Other machinery sector	36	47.4
4. Others	2	2.6
Total	76	100

Ownership	No of Enterprises	%
1. Vietnamese	37	48.7
2. Japanese	24	31.6
3. Other (Taiwanese, Korean, Chinese, etc.)	15	19.7
Total	76	100



manufacturing sites at the current stage of industrialization in Vietnam. Factory jobs include various positions such as product designers, production engineers, production-line leaders, and production-line workers. Since many FDI and domestic enterprises have been building or expanding their factories, the demand for college and secondary-graduate technicians who can lead production innovation activities (or kaizen activities) as engineers, technicians or line leaders, is presumed to be high.

This report recommends that TVET institutions should improve their capacity to provide the solid basic knowledge and skills that will improve the versatility of students, because detailed skill needs tend to differ by industrial sectors and individual enterprises. At the same time, strengthening the link with enterprises and learning about business trends and up-to-date technologies are still important for TVET institutions to organize their basic educational and training programs based on industry's needs. It is useful to explore ways that institutions can cooperate with enterprises to increase supplementary practical training opportunities through promotion of collaborative training, internships and other measures. To improve their cooperation with enterprises, TVET institutions should have clear strategies based on their comparative advantages and future visions, such as what their priority technical fields are and what type of industrial human resources they want to supply.



1. Introduction

Foreign direct investment (FDI) has drastically increased in Vietnam since 2004. This increase can be seen as a second investment boom, following the first surge in investment during the latter half of the 1990s. The total value of approved FDI projects reached US\$ 71.7 billion¹ in 2008, which is more than three times the value in 2007, US\$ 21.3 billion (GSO, 2010). However, most of these FDI enterprises were attracted to Vietnam by the abundance of good, low-wage production-line workers. While this investment has contributed to the initial stage of industrialization, sustainable industrialization and economic growth will require high-level industrial human resources such as excellent technicians and production-line leaders who can improve production operations. Such workers are needed not only for foreign subsidiaries that receive direct technology transfer through FDI, but also for local suppliers that may receive indirect technology transfer from the spillover effects of FDI enterprises. Local suppliers as well as FDI suppliers are important for supporting industries. Without the development of supporting industries, international competitiveness in the machine-manufacturing sector cannot be improved, even if the number of final assemblers increases².

It is widely recognized that Vietnam has high potential for developing industrial human resources, but, at this moment, the shortage of technicians and middle managers has become apparent. While FDI assemblers are expanding their investment in Vietnam for now, they may move to other countries with lower-wage production-line workers when the wages increase in Vietnam. For further industrialization, it is essential for Vietnam to develop highly skilled industrial human resources who can increase productivity and lead innovative activities before the country loses the advantages of having a low-wage labor force.

The government, enterprises and technical and vocational education and training (TVET) institutions in Vietnam have become more aware of the shortage of skilled workers and have started stressing the need for demand-oriented education and training, since the current TVET programs in Vietnam are supply-oriented. This is a good movement, but several issues need to be overcome to achieve the target. The demand-oriented education and training should be based on enterprises' needs for skills or skilled workers. However, the kind of skills that enterprises need is still not clear. The concept of "skills," which is often mentioned in newspapers or government commentary, is too broad and ambiguous to identify the actual training needs of TVET institutions. Another issue is how TVET institutions should balance general education and company-specific training. The primary purpose of TVET institutions includes provision not only of practical or company-specific skills, but also of general and theoretical knowledge. It may not be easy to decide to what extent the TVET institutions should try to fulfill requests from enterprises, since these requests must be balanced with the need for the general education that strengthens the fundamental capacity of students.

To obtain an overview of enterprises' needs, we designed and conducted our survey to learn enterprises' perceptions of the quality of TVET institutions. The main task of this survey report is to address the question: *What kinds of skills are required for TVET graduates and what is the role of TVET institutions?* We analyzed the answers from 76 enterprises. The following section will explain the background and overview of the survey. Section 3 describes the main findings from the survey. In Section 4, the findings from the survey are elaborated and summarized. In Section 5, we discuss the survey methodology and how it can be replicated by TVET institutions. Section 6 provides concluding remarks.

2. Background and Overview of Survey

The survey was jointly designed and conducted by international and domestic organizations who

¹ This is the total registered capital of licensed FDI projects. The value of implemented capital in 2008 was about US\$ 11.5 billion.

² The necessity of supporting industries is mentioned in Mori (2005), VDF (2006), and Nguyen (2007).

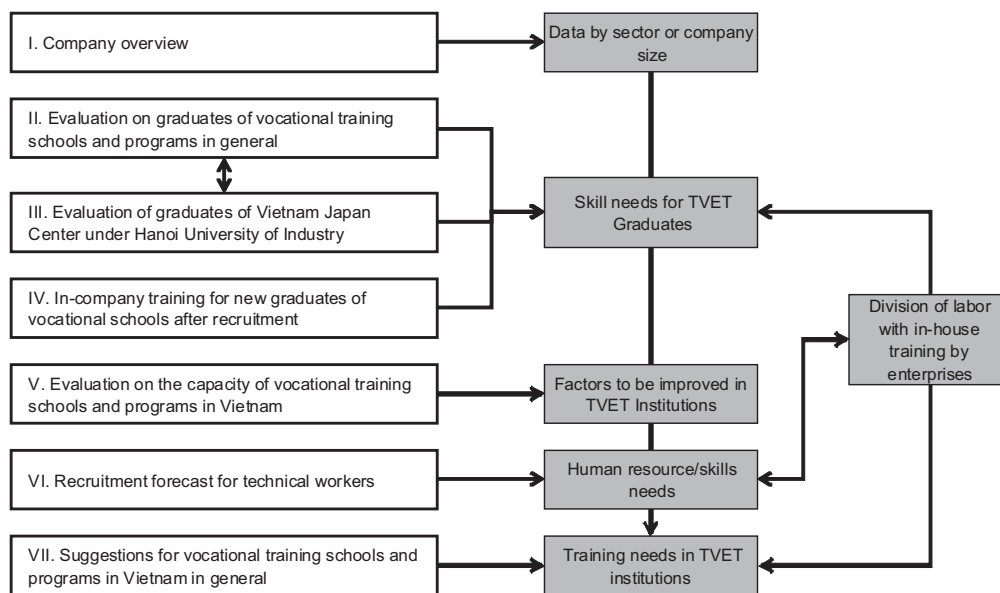
have been working to innovate industrial policies and develop industrial human resources, namely the United Nations Industrial Development Organization (UNIDO), the Vietnam Development Forum (VDF), National Economics University (NEU), Hanoi University of Industry (HaUI), and the Japan International Cooperation Agency (JICA). Also, the survey was developed as an extensive research activity under Hiroshima University’s research project entitled “Research on Cooperation in the Field of Skill Development Education and Economic Development.” The core researchers on this project had drafted a report on Vietnam’s TVET system³ under the Hiroshima University project, but found it was necessary to collect extensive quantitative and qualitative data about enterprises’ perception of the quality of TVET programs in Vietnam to provide more practical information for the TVET institutions and policy makers. With additional assistance from JICA, the research team developed the survey framework and conducted the survey from November 2008 to February 2009.

The survey aimed to identify what kind of skills are required for TVET graduates and what the role of TVET institutions is by analyzing enterprises’ evaluations of TVET graduates. Another purpose of the survey was to examine the performance of the Vietnam Japan Center (VJC) under HaUI and its graduates, which has been supported by JICA under the Project for Strengthening Training Capabilities of Technical Workers at Hanoi Industrial College (hereafter called the HIC–JICA Project) from 2000 to 2005⁴.

The research methodology was a mixture of quantitative and qualitative analysis. The survey results provided quantitative data, and in-depth interviews with key people at selected enterprises provided qualitative information. These face-to-face interviews with enterprises were needed to supplement the quantitative data, because enterprises often tell more in face-to-face interviews.

The research team drafted the questionnaire (see Annex), which consists of seven sections: (I) company overview; (II) evaluation of graduates of vocational training schools and programs in general; (III) evaluation of graduates of VJC under HaUI; (IV) in-company training for new graduates of vocational schools after recruitment; (V) evaluation of the capacity of vocational training schools and programs in Vietnam; (VI) recruitment forecast for technical workers; (VII) suggestions

Figure 1. Structure of Survey Questionnaire



Source: Authors

³ See Mori, Nguyen and Pham (2009).

⁴ For further details of the HIC-JICA Project, see Mori, Nguyen and Pham (2009).

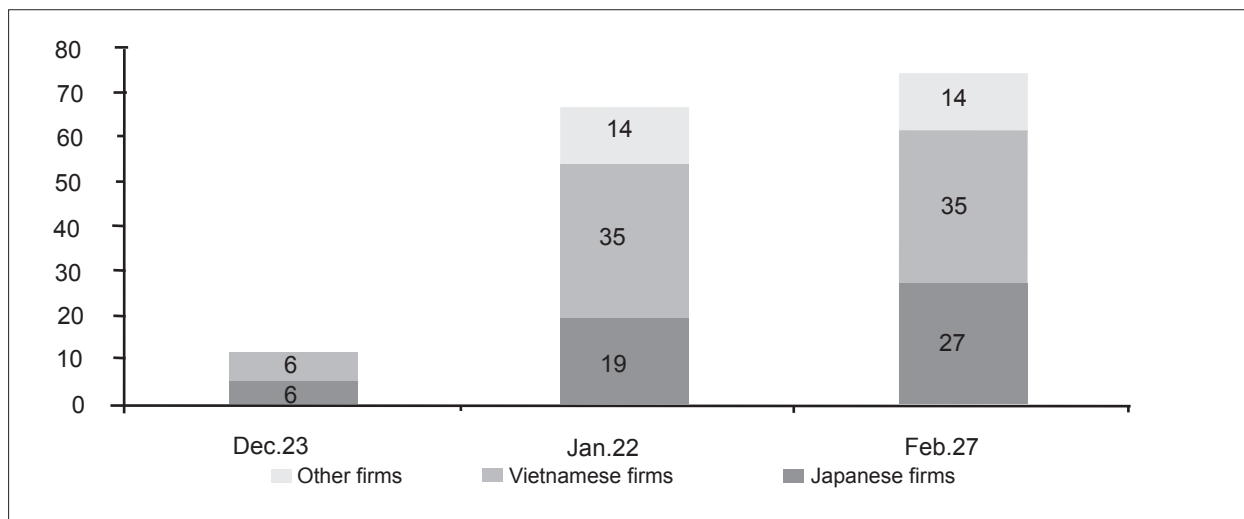
for vocational training schools and programs in Vietnam in general.

The relationships among sections and the type of information each section tried to find are shown in Figure 1. The purpose of Section I was to gain basic data on the responding enterprises and to segregate the enterprises by sector, size and so forth. Sections II and III were to obtain perceptions of enterprises about TVET graduates in general and those who graduated from VJC and to compare the two evaluations in order to see the impact of the HIC-JICA Project. Section IV was to gain an understanding of the training needs in general for TVET graduates. After getting this overview data, the results on the training needs from Sections II, III and IV should be compared with the results from Section VII, which aims to identify perceptions about what kinds of training are better done in TVET institutions and what should be done in the enterprises. Section V is to evaluate the capacity of TVET institutions and to find out how many enterprises have visited TVET institutions. Section VI was to obtain recruitment forecast data.

The survey mainly targeted enterprises in the machine industry such as assemblers and parts suppliers for automobiles, motorcycles, and electric and electronic products. We focused on those three sectors, because the machine industry is a high-potential industry that may grow rapidly and become a core industrial sector in the future by taking advantage of FDI. We selected 160 enterprises. Of these, 93 are foreign-invested enterprises, including 61 Japanese and 32 non-Japanese. Sixty-seven of them are Vietnamese enterprises, based on a list of enterprises that have recruited HaUI graduates and that UNIDO and VDF have contacted before for other studies.

It was not at all easy to collect the answers from the enterprises. The survey questionnaires were sent to 160 enterprises by post in the first stage. However, as expected to some extent, only 12 enterprises (8.6% of the total) responded by 23 December 2008, the reply deadline. As the second step, team members contacted the enterprises by telephone or in face-to-face meetings. This helped increase the number of responses to 68 enterprises (42.8%) by 22 January 2009, but we found that there were fewer answers from Japanese enterprises than we had expected. As the final step, the research leader visited 8 Japanese enterprises, and the number of the respondents reached 76 companies (47.5%) by 27 February 2009 (see Figure 2).

Figure 2. Transition of Number of Respondents



Source: Authors

The respondents vary in terms of sector and ownership. The breakdown of respondents by industrial sector is 31.6% from the electric and electronics sector; 18.4% from the automobile and motorcycle sector; 47.4% from other machine-related sectors; and 2.6% are categorized as others (see Table 1). Regarding the breakdown by ownership, 48.7% are Vietnamese enterprises; 31.6% are Japanese; and 19.7% are other foreign-invested enterprises.

Table 1. Structure of Respondents

Sector	No. of Enterprises	%	Ownership	No of Enterprises	%
1. Electrical and electronics	24	31.6	1. Vietnamese	37	48.7
2. Automobile and motorcycle	14	18.4	2. Japanese	24	31.6
3. Other machinery sector	36	47.4	3. Other (Taiwanese, Korean, Chinese, etc.)	15	19.7
4. Others	2	2.6	Total	76	100
Total	76	100			

Source: Authors

3. Main Survey Findings

The survey results were basically analyzed in two ways: (i) observing the relative tendency of averaged scores in each section, examining the average by industrial sector or ownership; and (ii) comparing the tendencies of scores with findings from in-depth interviews or written comments in questionnaires. Observing the relative tendency of average scores rather than looking at the absolute scores gives a better idea of the results. In many sections, we asked respondents to grade their answers from 1 to 5 in the questionnaire, aiming at quantifying the perception of enterprises. Since some respondents may tend to hesitate to give a score lower than 3, a score of more than 3 does not always mean that respondents are satisfied. Therefore, we looked at the relative tendency of the scores in comparison with results of other questions in the same section. Then, we compared the quantitative results with comments from in-depth interviews or those written in questionnaires. This qualitative data complements the quantitative data.

3.1. Evaluation of TVET Graduates in General

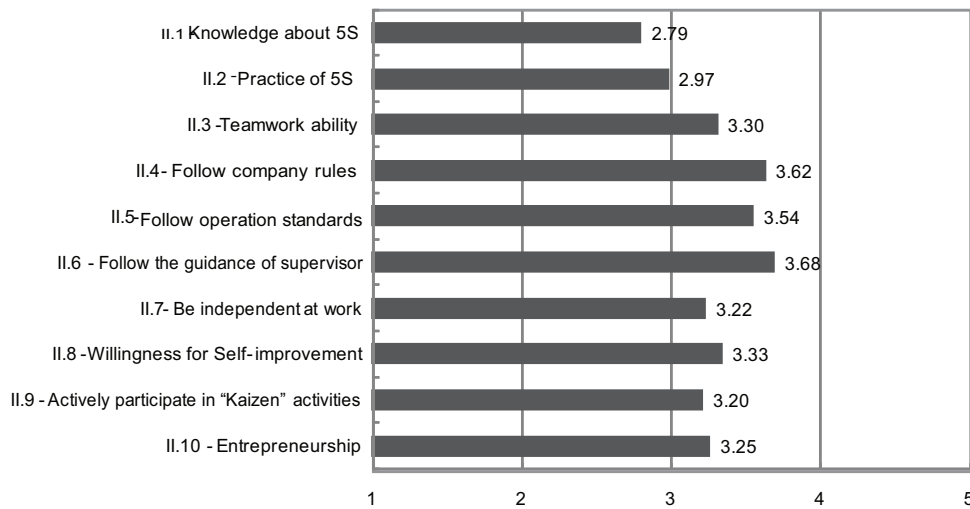
We divided the questions into two groups to analyze the results for Section II, “Evaluation of TVET Graduates in General.” Questions II.1 to II.10, which cover performance aspects such as working attitude, are considered (i) general job ability; and Questions II.11 to II.21 are about (ii) technical skills.

The average score for general job ability suggested that enterprises found the knowledge and practice of 5S⁵ among TVET graduates to be relatively lower than other items (see Figure 3). Another finding is that TVET graduates seem relatively better at following company rules and operation manuals as well as the guidance of supervisors. No particular tendency was found regarding actively improving operation and their work using specific techniques such as *kaizen*⁶.

⁵ 5S is a method for organizing a workplace, especially a shared workplace, and keeping it organized. It is a reference to a list of five Japanese words which include SEIRI (Sort), SEITON (Set in order), SEISO (Shine), SEIKETSU (Systematize), and SHITSUKE (Standardize / Self-discipline).

⁶ *Kaizen* is a Japanese philosophy that focuses on continuous improvement throughout all aspects of life. When applied to the workplace, *Kaizen* activities continually improve all functions of a business, from manufacturing to management, from the CEO to the production line workers.

Figure 3. Evaluation of TVET Graduates: General Job Ability

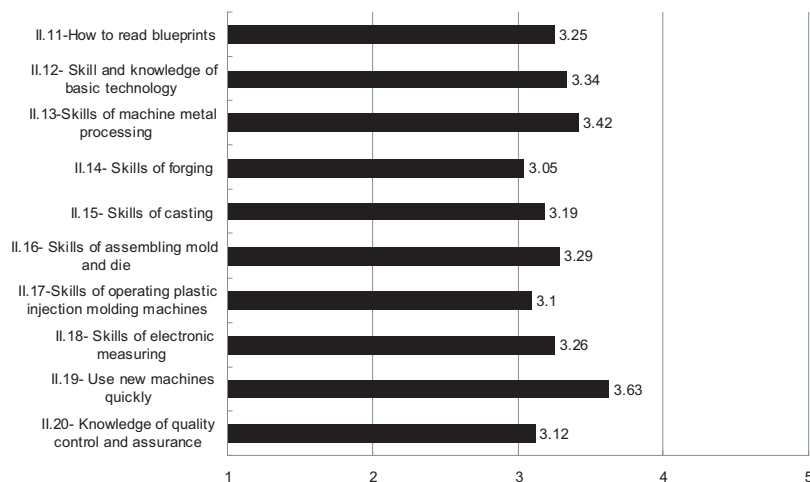


Source: Authors

In general, comments gained through in-depth interviews are consistent with the above findings. It was often said that TVET graduates did not have sufficient knowledge about 5S. Some enterprises reported that their employees tended to follow the rules simply because they were afraid of penalties. On the other hand, some enterprises said that their employees did not have the ability to work as a team, although the average score from the survey is not relatively low. In addition, some enterprises might not expect that students could learn *kaizen* in TVET institutions, because it may be something that is difficult to learn and practice in school. This may have been the reason that many enterprises graded this question around 3, even though they were not satisfied with TVET graduates' attitudes toward *kaizen*.

The results from the section on technical skills indicate that TVET graduates tend to learn how to use new machines quickly (see Figure 4). The evaluation on specific technical skills such as plastic mold injection, casting and forging are not very high, but this would be reasonable considering that students may not have had much opportunity to practice those skills in schools.

Figure 4. Evaluation of TVET Graduates: Technical Skills

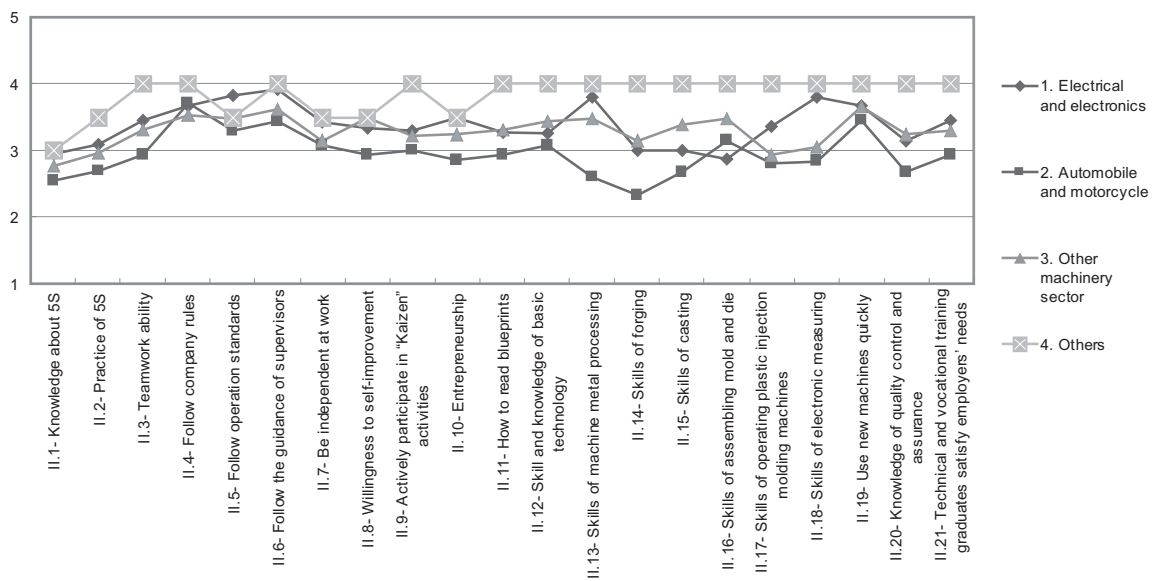


Source: Authors

The above quantitative results are basically in line with comments heard in the interviews. Several enterprises said that TVET graduates could learn to use new machines quickly. Nonetheless, some Japanese enterprises commented that TVET graduates did not know how to read blueprints, even though the average score from the survey on Question II.11 is not so low. In particular, Japanese enterprises wondered why the graduates did not know third-angle orthographic projection. Regarding specific skills, some Japanese enterprises stated that students should learn basic knowledge and theory that would become a strong foundation for applied skills later, because it would be difficult to learn practical skills in schools anyway. On the other hand, Vietnamese enterprises tended to comment that they want to recruit students who have already learned specific skills.

The evaluation of TVET graduates differs slightly by industrial sector and main investor's nationality. Looking at the breakdown by industrial sector, the evaluation by enterprises in the automobile and motorcycle sector⁷ is lower than the other sectors in general (see Figure 5). Before the survey, we expected that the evaluation in the motorcycle sector would be higher than other sectors, because it has a longer history of operation, higher local procurement ratio⁸, and larger market size. Several reasons may be considered for this lower evaluation. Enterprises may be looking for higher performance now that basic manufacturing operations are stabilized. Or, it is possible that enterprises in this sector may be feeling disappointed about the slow progress of skill improvement among their employees.

Figure 5. Evaluation of TVET Graduates by Industrial Sector

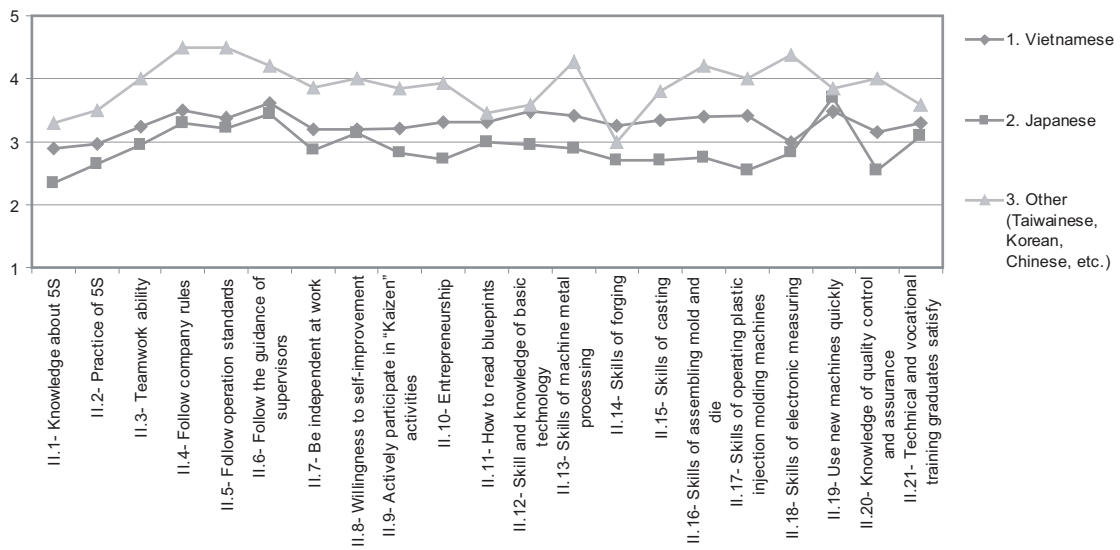


Source: Authors

⁷ Since many companies produce both automobiles and motorcycles or production parts for both products, we combined the two sectors.

⁸ Refer to VDF (2006) for overviews about procurement ratio.

Figure 6. Evaluation of TVET Graduates by Main Investor’s Nationality



Source: Authors

Seeing the breakdown by main investor’s nationality, the average scores from Japanese enterprises are lowest for most of the questions (see Figure 6). This result was as expected, because the quality standards in Japanese enterprises are the strictest and the requirement for human resources are the highest. On the other hand, it is curious that the average scores in other foreign-invested enterprises are basically higher than Vietnamese enterprises.

3.2. Evaluation of VJC Graduates

Our assumption was that VJC graduates should be more highly evaluated as a result of the HIC-JICA Project. It seems that VJC graduates were more highly evaluated, because the average scores for all questions are more than 3. In this section, the evaluations of VJC graduates are considered better if the score is more than 3, which means no difference with other TVET graduates. In particular, VJC graduates were evaluated slightly better than TVET graduates in general job ability (see Figure 7).

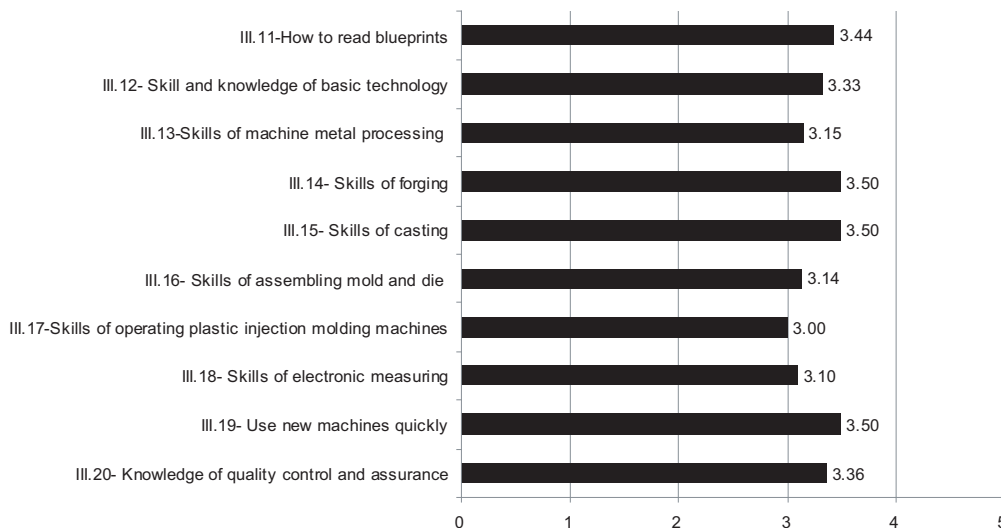
Figure 7. Evaluation of VJC Graduates: General Job Ability



Source: Authors

On the other hand, although the average scores on technical skills are all over 3, there is less difference from other TVET graduates in some items such as mold and die assembling, operation of plastic injection molding machines, and electronic measuring (see Figure 8).

Figure 8. Evaluation of VJC Graduates: Technical Skills



Source: Authors

In summary, the results may indicate that the HIC-JICA Project contributed to improvement of VJC graduates' overall performance. However, the significance of those results might be questioned due to the small size of samples, because only 17–18 enterprises answered this section. We had difficulty in collecting responses for this section, because in reality many enterprises are indifferent to the schools from which their employees graduated. In addition, some of them also do not distinguish VJC graduates from other HaUI graduates.

Similar to the findings from the questionnaire responses, comments gained through interviews are a mixture of positive and negative regarding VJC graduates. Some enterprises answered that VJC graduates had better theoretical knowledge and practical skills. One enterprise attributed this to good training facilities, well-trained lecturers and strict selection of students in enrollment. In contrast, one enterprise commented that students from Hanoi University of Technology and the Vietnam-Germany College had better practical skills than those from VJC or HaUI. Also, another enterprise stated that graduates from industrial colleges and professional secondary schools, including VJC, tended to quit their jobs quickly, saying that they wanted to go to university. Therefore, this company preferred either university or high school graduates to those from colleges and secondary school. In addition, one enterprise said that VJC staff had not been visiting enterprises after the Japanese experts left and the HIC-JICA Project was closed in 2005.

3.3. In-company Training after Recruitment

The goal of this section was to help us understand the training needs regarding basic working attitude and skills, assuming that in-company training covers the items that TVET institutions have not sufficiently provided for students. However, the questionnaire in this section did not work well, and there seems to have been some misunderstanding among enterprises about what the research team meant. This led to results that are difficult to interpret, but we may see that many enterprises provide retraining for working attitude and basic skills, which TVET institutions should have done (see Table 2).

Table 2. Training after Recruitment

Training Subject	N
1. 5S, Kaizen (by week)	27
2. 5S, Kaizen (by hour/month)	18
3. Working attitude (by week)	35
4. Working attitude (by hour/month)	18
5. Basic skills (by week)	37
6. Basic skills (by hour/month)	15
7. New machine operation (by week)	33
8. New machine operation (by hour/month)	14
9. Others (by week)	7
10. Others (by hour/month)	3

Note: N shows the number of enterprises which answered to the questions.

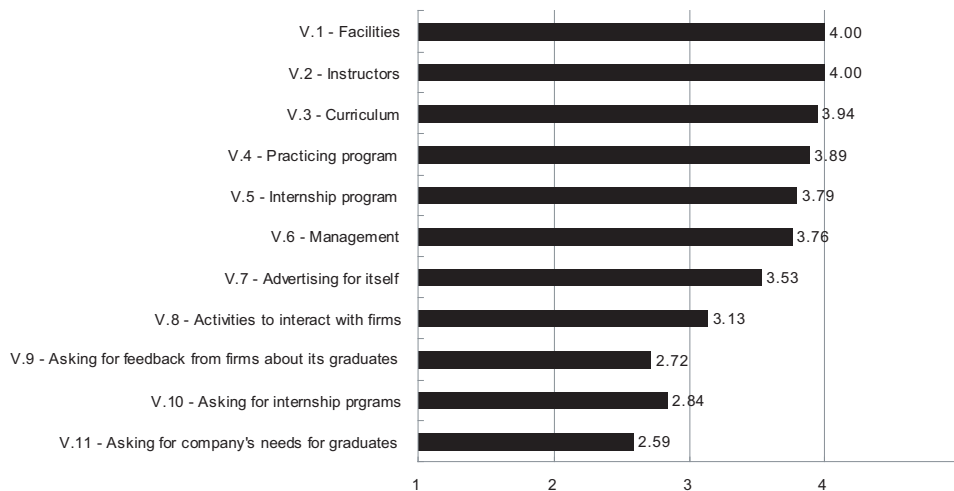
Source: Authors

Through interviews, it was found that many Japanese companies conducted initial training for new employees, which varies from one week to one month, and on-the-job training after that. The initial training usually teaches company rules, workplace safety, basic skills, and basic operation procedures. On the other hand, some Vietnamese companies, in particular SMEs, may not be able to afford to provide basic training. Therefore, they may want to recruit TVET graduates with practical skills.

3.4. Capacity of TVET Institutions

Before the survey, we expected the results would show dissatisfaction with the capacity of TVET institutions. However, the actual results are better than our expectation for some items. The average scores for facility, instructors, curriculum, practical training, internship and management are around 4 points (see Figure 9). This may be attributed to the way we asked the questions: we asked respondents to evaluate the TVET institutions they visited. Enterprises usually visit TVET institutions with good reputations. That may be why the results are better than our expectation.

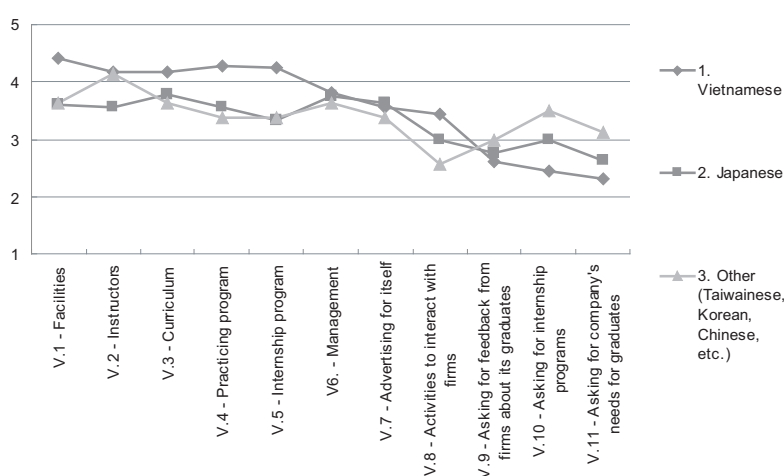
Figure 9. Capacity of TVET Institutions



Source: Authors

In contrast, the average scores on the communication or interaction with enterprises (Question from V.8 to V.11) are around or lower than 3 points. This result agrees with comments during the interviews that TVET institutions rarely come to ask enterprises what kind of training or skills they require. In addition, many enterprises welcome internships, but they said that instructors of TVET institutions should monitor the internships more closely. Instructors usually do not even come to visit and see how students are doing during the internship. Similarly, some enterprises recommended that instructors should visit enterprises and learn up-to-date skills. Other enterprises said that job fairs should be better organized. In current job fairs, it is difficult to know to what degree or in what fields students are skilled. Furthermore, the results by investor nationality show that the evaluation of institutions interaction with the enterprises is lower for Vietnamese enterprises than for Japanese enterprises (see Figure 10). This suggests that TVET institutions tend to pay less attention to local enterprises than to FDI enterprises.

Figure 10. Capacity of TVET Institutions: By Investor Nationality



Source: Authors

3.5. Recruitment Forecast

This was another section in which we had difficulty collecting answers. Regardless of the industrial sector or investor nationality, it seems that many enterprises cannot provide recruitment forecasts for two main reasons: (i) they do not recruit fresh graduates regularly but post vacancies as necessary; and (ii) due to the negative impact of the recent economic crisis, many enterprises have been suspending recruitment of new staff.

Table 3. Recruitment Forecast: University/College Graduates

	Y2009	Y2010	Y2013
1. Machine and metal processing	40%	45%	50%
2. Forging	1%	2%	2%
3. Casting	5%	3%	6%
4. Assembling mold and die	5%	14%	5%
5. Plastic injection molding	3%	13%	8%
6. Production control	24%	7%	13%
7. Quality control and assurance	21%	15%	16%

Source: Authors

Even with these constraints, it is still possible to find some implications in the survey results. One finding is that, seeing the proportion of main professions for which enterprises plan to recruit new staff, there should be higher demand for university or college graduates who learned machine and metal processing, production control and quality control (see Table 3).

Almost the same results were found for secondary school and other graduates (see Table 4).

Table 4. Recruitment Forecast: Secondary School and Others

	Y2009	Y2010	Y2013
1. Machine and metal processing	44%	36%	47%
2. Forging	0%	0%	1%
3. Casting	0%	0%	3%
4. Assembling mold and die	1%	1%	1%
5. Plastic injection molding	13%	16%	13%
6. Production control	9%	6%	6%
7. Quality control and assurance	33%	40%	29%

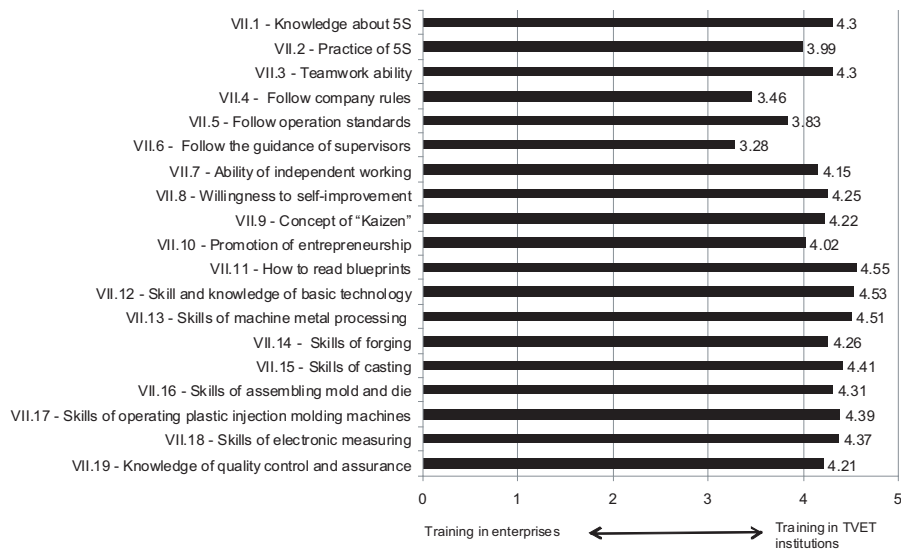
Source: Authors

Considering the low rate of responses from enterprises, the difficulty in getting recruitment forecasts would be a major challenge if the government or TVET institutions are considering developing training courses based on recruitment forecasts of enterprises. Many enterprises in Vietnam are still young and have not had a regular recruitment cycle yet. Also, the recruitment demands of the companies frequently change depending on the economic situation, and it is not very likely that many enterprises will commit to recruitment in advance. In short, it is important that TVET institutions consider the needs of enterprises when they establish their training courses, but they should also be aware of the difficulty in asking enterprises to commit to specific recruitment numbers, even if the schools provide training based on company-specific needs.

3.6. Training Needs for TVET Institutions

The purpose of this section is not only to observe the training needs but also to gain an understanding of what a desirable division of labor between TVET institutions and in-house training by enterprises would be. The average scores for all technical skills are all over 4 points. Regarding general job ability, the average scores for following company rules, supervisors and standards seem relatively lower, while some items such as 5S, teamwork ability, self-improvement, kaizen and entrepreneurship spirit are over 4 points (see Figure 11).

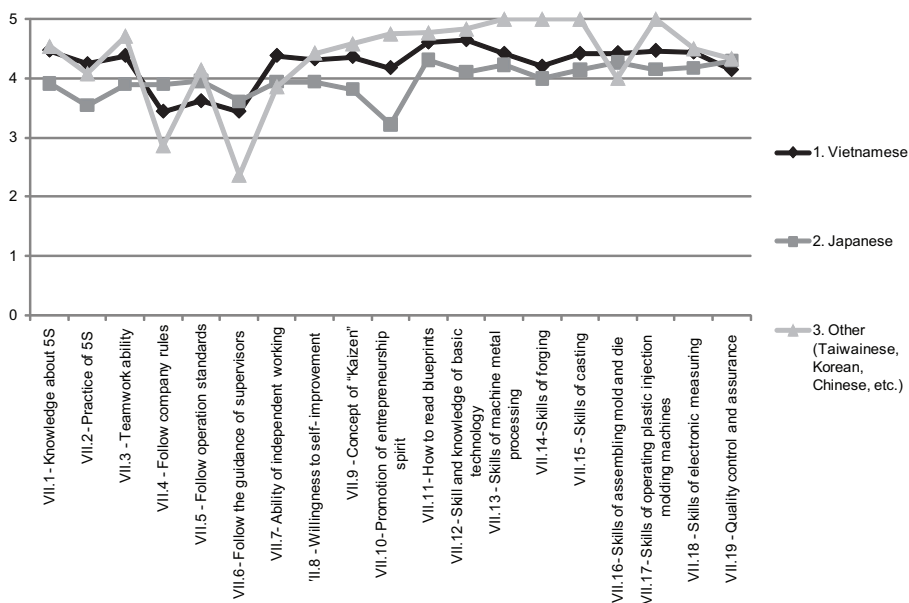
Figure 11. Training Needed in TVET Institutions



Source: Authors

However, this may not necessarily mean that most enterprises are satisfied with the performance of TVET graduates for the items with relatively lower scores. The breakdown by investor nationality indicates that Japanese enterprises want TVET institutions to strengthen general education such as working attitudes, while Vietnamese enterprises put more priority on technical education (see Figure 12). Since large Japanese enterprises often have internal training programs in place, they may prefer to recruit students who are sufficiently disciplined and have good basic knowledge, which can be the foundation for learning applied skills. On the other hand, many Vietnamese enterprises have not applied good manufacturing practices, including strict quality control and continuous productivity improvement. Therefore, because many of them may not have established internal training programs, they might not care so much about general job ability, while they do require TVET graduates to have practical technical skills

Figure 12. Training Needed in TVET Institutions: By Investor Nationality

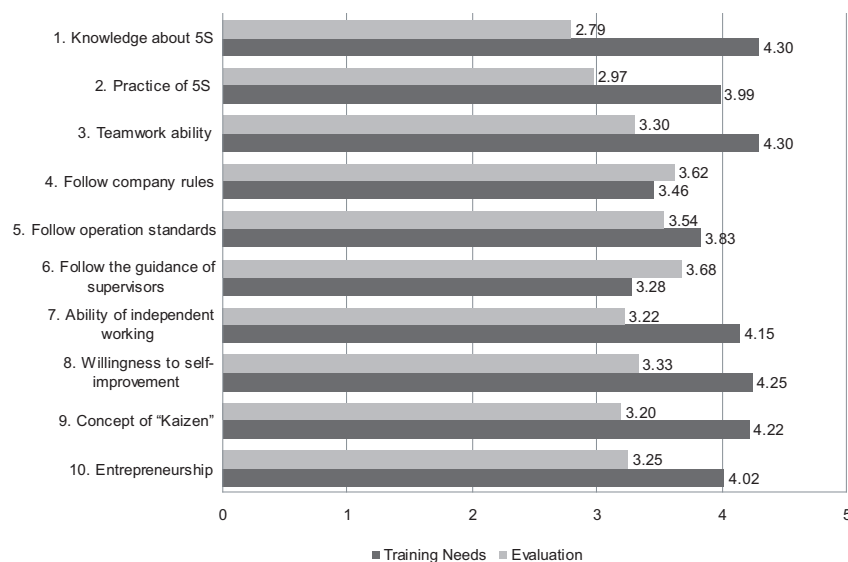


Source: Authors

The results of this section supplement our observations from Section II. It is expected that, if the evaluation for a certain item is relatively lower in Section II of the questionnaire “Evaluation of TVET Graduates in General,” the training needs for the same item, which are measured in this section, should be higher. In contrast, if the evaluation for a certain item is lower but training needs are also low, this may mean that enterprises feel it is not efficient to conduct the training for that item in TVET institutions.

Most of the results fell into the first case, that the lower the evaluation is, the higher the training needs are (see Figure 13). However, the training needs for practicing 5S seem relatively lower than others. This may reflect enterprises’ perceptions that it might be difficult to teach practical skills such as 5S in classrooms to students who do not have working experience. However, some enterprises said in interviews that it would still be possible and useful to teach the essentials of 5S. For example, it is useful to get students accustomed to cleaning up their own classrooms and to returning tools to the appropriate places after use. The concept of *kaizen* may also be applied here. Also, it would be useful to teach the basics of *kaizen*, such as the importance of shortening lead-time and why it is necessary to keep the work place tidy for efficiency.

Figure 13. Training Needs vs. Evaluation for General Job Ability



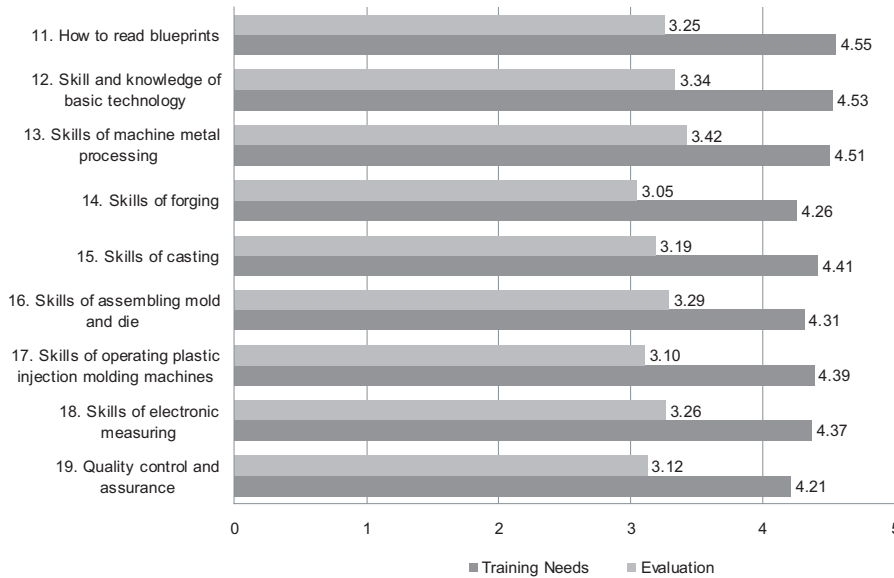
Source: Authors

The items related to following rules and supervisors (items 4 to 6) may seem to fall into the second case, but this is probably because lower training needs in Vietnamese companies mitigated the higher needs of Japanese enterprises. Some enterprises, in particular Japanese ones, said that TVET institutions should pay more attention to helping students develop better and more professional working attitudes and business manners. In addition, other companies mentioned the importance of mathematics, foreign language and PC skills.

The relationship between evaluation and training needs for technical skills falls into the first case (see Figure 14). Comments received through questionnaires and interviews follow this result. Many Japanese enterprises suggested that TVET institutions should strengthen training in reading and drafting blueprints, saying that many TVET graduates cannot read and draft blueprints in the third-angle orthographic projection. As for the technical fields the questionnaire did not cover, some enterprises want TVET institutions to strengthen training on facility and machine maintenance,

mentioning that it is difficult to find technicians who have sufficient knowledge of maintenance in Vietnam. Appropriate facility and machine maintenance is an important part of 5S and kaizen. At the same time, those enterprises wonder if it is possible to teach those topics in schools. Other enterprises mentioned the importance of mold and die manufacturing, electrostatic painting, metal heat treatment, and sequential control. This may be because those enterprises have plans to expand their business in said fields.

Figure 14. Training Needs vs. Evaluation for Technical Skills



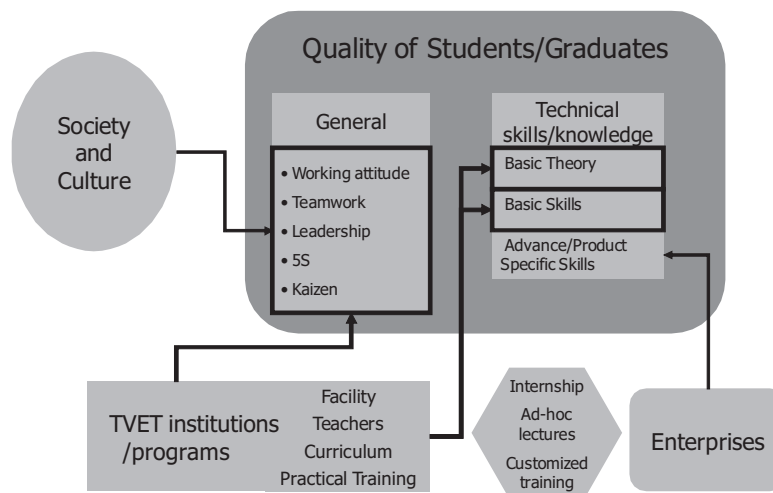
Source: Authors

4. Summarizing Survey Findings: What is the Role of TVET Institutions for Industrial Human Resource Development?

4.1. Main actors for skill development

We used the survey results to summarize the main factors that influence skill development, such as quality of students, TVET institutions, enterprises, society and culture and their relationship in Figure 15.

Figure 15. Main Factors for Industrial Human Resource Development



Source: Authors

We consider *competent and skilled workers* to be those who have (i) good general job ability such as a good working attitude, teamwork, leadership, knowledge and practice of 5S and *kaizen*; and (ii) good technical skills, which include basic theory, basic skills and product-based or company-specific skills. The survey results seem to indicate that *TVET institutions*⁹ can contribute to the development of industrial human resources by strengthening the general job ability and basic technical theory and skills of students. However, the improvement of general job ability cannot be achieved only by efforts by the schools; this also depends on the influence of *society and culture*. For example, if students grew up in households or communities in which they were never asked to clean their rooms, houses or communities for more than 15 years, it may be difficult to change their customs in two or three years in TVET institutions. On the other hand, the roles of *enterprise* in developing industrial human resources should be to teach advanced and product- or company-specific skills based on the general knowledge taught in TVET institutions. As supplementary options, it would be possible to teach certain introductory parts of advanced and practical skills in TVET institutions, in partnership with enterprises, utilizing means such as internships, ad-hoc lectures, and customized training. However, these would probably not be the main efforts.

4.2. Roles of TVET institutions and college-level or-secondary-level education for skill development

Considering important factors for skill development, *what is the role of TVET Institutions?* The survey results indicate that TVET institutions should basically focus on providing the solid basic knowledge and skills that are the foundation for applied skills such as company-specific skills. Through the questionnaires and interviews, many Japanese enterprises commented that TVET institutions should strengthen basic knowledge and skills of students without focusing too narrowly on any one field. For example, students should learn why metal can cut metal or what kind of accidents may be caused by mixing certain chemicals. In contrast, some local companies stressed that TVET institutions should teach practical skills in specific fields. However, it is very difficult for students to gain practical skills in the schools where the training capacity is limited in terms of facilities and instructors. Moreover, required skills may vary significantly by enterprise, and TVET institutions would not be able to provide training for all company-specific skills in any case.

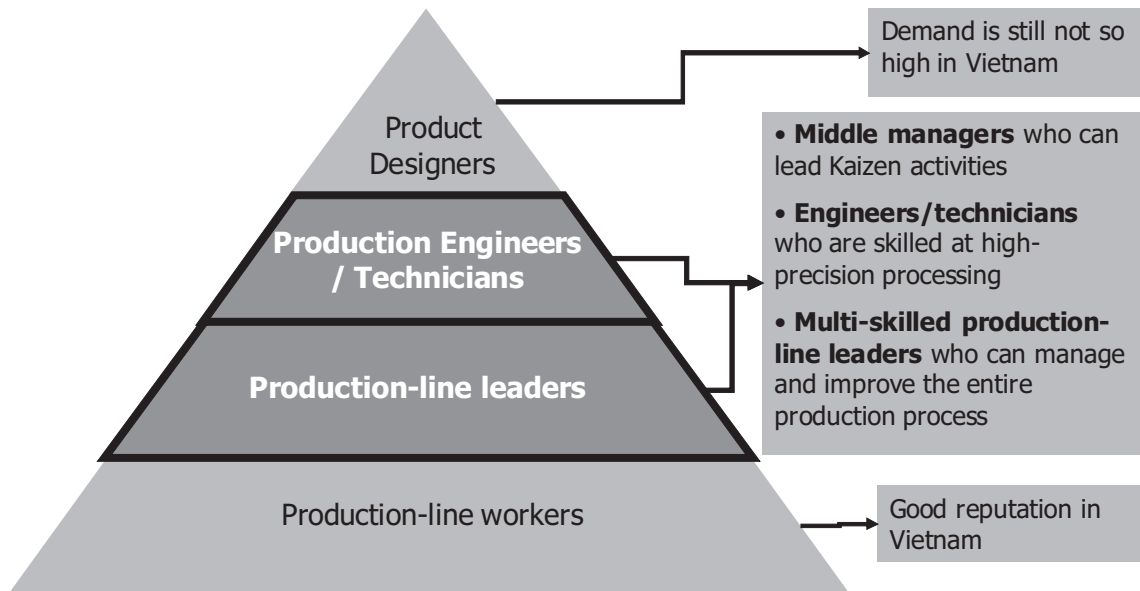
Among the various levels of TVET institutions, *college-level and - secondary-level education*, including VJC, is important for supplying competent production engineers and technicians who become the core of manufacturing sites, at the current stage of industrialization in Vietnam¹⁰. Factory jobs include various positions such as product designers, production engineers, production-line leaders, and production-line workers (see Figure 16). Since many FDI and domestic enterprises have been building or expanding their factories, the demand for college and secondary-graduate technicians who can lead production innovation activities (or *kaizen* activities) as engineers, technicians or line leaders, is presumed to be high. However, some enterprises pointed out that college or secondary graduates often leave enterprises after a short while. One reason may be that the social status for college and secondary graduates is not very high. It is often heard that many parents prefer that their children go to university rather than gaining skills in

⁹ We assume that most of students in TVET institutions are high-school graduates without working experience in Vietnam. If the majority of students in TVET institutions have work experience and their purpose is re-training, they should provide more practical training.

¹⁰ For example, Japan also faced the shortage of skilled technicians in the high economic growth period around the 1960s. Then, the Government of Japan promoted the “Kousen (5-year technical college)” system in order to increase the supply of skilled technicians.

colleges or secondary schools. Another reason is that colleges and secondary schools have not successfully differentiated themselves from universities. They should convince prospective students and their parents of the benefits of acquiring practical knowledge and skills.

Figure 16. Overview of Production-related Staff Structure



Source: Authors

Training based on the specific skill needs of enterprises is important, but this does not necessarily mean that TVET institutions should always provide training in specific skills in narrow technical fields. Considering the varied answers from enterprises, it would be more realistic for TVET institutions to focus on providing training on basic knowledge and skills that will make students more versatile. It is difficult to find out detailed training needs, although that was in fact the original target of the survey. Specific skill needs tend to differ significantly by sector and enterprise. Also, enterprises, in particular Japanese enterprises, do not really count on advanced training to be provided by TVET institutions. Finally, TVET institutions may want to ask for confirmation that enterprises will recruit the students if they provide specific training based on the enterprise's needs, because a narrow course of study might make students less versatile, making it harder to be recruited by other enterprises. Certainly, there are some cases in which TVET institutions provide training courses for specific skills in partnerships with enterprises that may provide their internal experts as instructors and necessary training equipment. For example, the Vietnam–Germany Center at the University of Technical Education in Ho Chi Minh City has provided training courses on Programmable Logic Controller (PLC) for employees of Siemens¹¹. HaUI is providing training courses on metal processing using CNC machines for prospective employees of Foxconn¹². However, it is considered that those cases are still additional options, not the core programs of TVET institutions. In most cases, enterprises may not want to promise recruitment of students a few years in advance, because the hiring decision will depend on the business and economic situations. In addition, TVET institutions may not have the capacity to undertake so many customized courses for individual enterprises, and they need to balance the demand for specific skills with the general

¹¹ Refer to Mori, Nguyen and Pham (2009) for further details.

¹² Refer to the presentation made by HaUI in the JICA-VDF-UNIDO seminar in March 2009.

education necessary for a wide range of students. In short, offering strictly demand-based training would be one option for TVET institutions, but it is proposed that this type of training should remain a small part of training programs and the major part should be about basic technical training, which would give students more job flexibility.

4.3. Strengthening the link with enterprises

Strengthening the link with enterprises and learning about business trends and up-to-date technologies are still important for TVET institutions. At the same time, they should maintain attention to basic technical education and training. Promotion of *internship* is one measure TVET institutions can use to link with enterprises. The survey results indicate that many enterprises welcome internships in principle. However, in reality TVET institutions are facing many challenges to starting internship programs including coordination to match the skill needs of enterprises with the interests of students; timing of internships; and cost sharing. Some public or private organizations may play intermediary roles in connecting TVET institutions and enterprises to promote internships. For example, the Vietnam-Japan Cooperation Center (VJCC) in HCMC is trying to match TVET institutions and enterprises. VJCC made a list of universities that want to send students for internships to Japanese enterprises and provided the list to the Japan Business Association in HCMC (JBAH). Then, JBAH circulated the list among Japanese enterprises who are interested in having interns. Another way to strengthen the link with enterprises is to provide customized training for company employees. By doing this, TVET institutions will learn up-to-date technologies. However, as mentioned, TVET institutions should balance this type of training with basic technical education and training, carefully considering the capacity of schools and broader benefits for students. In addition, there are other measures that would increase interaction with enterprises such as hosting company visits, organizing alumni meetings, and inviting guest lecturers from enterprises. Table 5 compares measures taken by some leading TVET institutions in Malaysia, Thailand and Vietnam for increasing partnership with enterprises

Table 5. Common Measures to Strengthen Links with Enterprises

Name of TVE schools	Country	Support of foreign expert	Regular meeting with alumni	Short - tem courses	Receiving orders from enterprises	Intern-ship	Curriculum Review meeting with enterprises	Skill demand survey	Enterprises Involvement: In magement
Penang Skill Development Center (PSDC)	Malaysia	-	?	o	-	?	o	?	o
Thai-Nichi Institute of Technology (TNI)	Thailand	o	o	o	-	o	o	?	Δ
VSTTC/Vietnam - Singapore Vocational College	Vietnam	o	?	o	-	o	Δ	Δ	-
HIC - JICA/ VJC	Vietnam	o	?	Δ	o	o	-	-	-
Vietnam - Gemany Training Center	Vietnam	o	o	o	-	?	Δ	-	-
Cao Thang Technical College	Vietnam	-	o	o	-	o	Δ	-	-

Note

- o: Used as a regular or main means or fully implemented
- Δ: Used as a temporary means or partially implemented
- : Not or seldom used
- ?: Unknown

Source: Mori, Nguyen and Pham (2009)

TVET institutions, who receive technical assistance from ODA projects, may use a foreign expert's network to develop links with enterprises in her or his country. While sampled TVET institutions use common measures such as regular meetings with alumni, internships, and short-term courses, one unique measure taken by HaUI is to receive the manufacturing orders from enterprises for jigs and production equipment. By manufacturing the products, instructors and students can learn the actual quality standards of enterprises. On the other hand, although many schools intend to conduct surveys on enterprise needs, most of them do not do surveys regularly but rather on an ad-hoc basis. Several TVET institutions take advanced measures such as establishing curriculum review meetings with enterprises and involving enterprises in the management of the schools. These are ideal measures which may enable TVET institutions to directly reflect enterprise needs in the operation of the schools.

4.4. How to prove that students are “skilled”

The overall impact of the efforts made by TVET institutions should be measured by how many skilled workers are provided for the market, but it is not easy to prove that students are skilled. Currently, “skilled workers” in Vietnam means those who have received diplomas or training certificates after completing requirements in TVET institutions. Nonetheless, many enterprises do not really rely on such certificates as evidence of skills. How can TVET institutions prove that their students are skilled? One way would be to carefully set up reliable and up-to-date skill certificates. Skill certificates must be at international levels and recognized by enterprises; there is no use if no enterprises adopt those skill certificates. Therefore, it is important to involve enterprises in establishing skill tests. Pilot skill tests may be tried in a field in which the demands of enterprises are relatively high. For example, some Japanese mold and die producers urge their employees to pass Japanese mold and die skill tests.

5. Reviewing the Survey Methods as Guidance for TVET institutions

In this section, we would like to review our survey methods to provide some practical guidance for TVET institutions interested in conducting surveys on industrial human resource needs in enterprises in the future.

5.1. Formulation of survey questionnaire

A good survey questionnaire should be clear and concise. It should be understandable for everybody, written with easy words, and it should not be too lengthy. These points may be well known, but questionnaires still tend to use jargon and be lengthy, simply because people who conduct surveys want to gain as much information as possible, while respondents do not really care about the quality of survey results and want to minimize the time it takes to answer them. Therefore, it is necessary to explore where there are points of compromise between the survey team and respondents. To do this, a trial survey was useful in our case. Before we officially distributed the questionnaires, we conducted five trial surveys on enterprises. This enabled us to improve the questionnaires by reducing jargon, reducing the number of questions, and anticipating frequently asked questions. Answers for frequently asked questions were summarized in the brief guidance document for answering the survey. Finally, the survey questionnaire was written in three languages: Vietnamese for local enterprises; Japanese for Japanese enterprises; and English for other FDI

enterprises. Despite these efforts, the questionnaire was still imperfect in several sections, as we could not collect sufficient data on retraining and recruitment forecasts. The quality of answers in those sections was not satisfactory, simply because respondents could not fully understand what we wanted to know.

5.2. How to increase respondent ratio

A common problem for those who conduct surveys is how to increase the rate of response. Surveyors tend to wonder why respondents do not answer even though the survey results would eventually contribute to reducing their problems. On the other hand, respondents may often feel doubtful about the purpose and impact of a survey. Our survey was not an exceptional case and the response ratio remained low for a while after the questionnaires were sent by post and uploaded to the website. Aside from the quality of the survey questionnaire, one reason for the low response could be that enterprises feel tired of responding to many surveys. A general director of one company said that it was impossible for researchers to get substantial information from a paper survey and proposed that researchers should visit companies and listen to people's voices directly. In addition, he said that he has never received the results and analysis of a survey after answering it.

Basic measures to increase the response rate include formulation of a good questionnaire with a trial survey; combination of mailing and direct interviews; and making sure to send feedback from the survey results to respondents. In addition, another solution may be to utilize reliable organizations as intermediaries between TVET institutions and enterprises. Involvement of intermediate organizations would give credibility to the survey. Vietnam-Singapore Vocational College in Binh Duong Province received higher responses after getting cooperation from the management company of Vietnam Singapore Industrial Park (VSIP)¹³. To give an example from another ASEAN country, Thai-Nichi Institute of Technology (TNI) has strong links with the Japanese business association in Bangkok who encourages their member companies to respond to the survey¹⁴.

5.3. Thematic and geographical scope of survey

A national-level survey on industrial human resources needs in a broad range of sectors may provide insight into general trends and perceptions. However, it would be advisable for TVET institutions to narrow the thematic and geographical scope, because these institutions generally have limited resources. A national-level survey would be useful when national-level authorities want to know general trends on industrial human resource needs, but it would be too costly and it would not give detailed and practical information that TVET institutions could immediately use to guide their actions. As we experienced, labor-intensive work including telephone and face-to-face interviews are needed to collect detailed and useful information from enterprises. In addition, enterprises tend to give detailed information to persons or organizations with which they have good, long-term relationships. Furthermore, since industrial human resource needs differ very much by sector, survey results may not provide useful information if the survey is conducted across many sectors. Therefore, if the purpose of the survey is to get information that directly improves educational and

¹³ Refer to Mori, Nguyen and Pham (2009) for further details.

¹⁴ Ibid.

training programs in TVET institutions, it would be more effective and efficient to conduct the survey only in selected locations and industrial sectors.

5.4. Who is an appropriate focal point in an enterprise

One difficulty we faced consistently was deciding whom we should interview in enterprises. In general, we tried to contact managers of human resource departments in large companies and general directors at SMEs. However, human resources issues are related to various departments and it was rare that one person in an enterprise would have all the information we wanted. For example, a human resources department may have recruitment information, including academic background and performance, but they may not always have feed-back after new employees are transferred to various departments. On the other hand, a manager of a production-related department is the one who sees the performance of TVET graduates in daily operation, but she or he is not usually concerned about the schools from which employees graduated. Finally, general directors are often good for providing general overviews of human resources, including TVET graduates, but they would not be able to provide very detailed information such as the skills TVET graduates need to have learned in schools. Unfortunately, there is no single answer to fit all enterprises. Although it creates more labor-intensive work, interviewers should send questionnaires to either a manager of the human resource department or a general director and then should follow up by calling enterprises and asking who should be a focal point.

6. Closing remarks

Despite all the challenges and difficulties, we feel that we have provided some informative and practical information for improvement of TVET programs in Vietnam. The results show certain tendencies of perceptions of enterprises of TVET programs and the needs of industrial human resources in Vietnam. Some issues may be already known among enterprises and TVET institutions, but it should be useful to reconfirm them with quantitative data and qualitative information. In addition, we hope to provide some useful tips for TVET institutions that intend to do quick surveys on enterprises' needs. Our survey utilized our limited time, manpower and financial resources to the fullest. This means that many TVET institutions should be able to gain informative feed-back from enterprises without abundant financial resources or big consulting teams if they can get certain professional advice and exchange information with each other. For small TVET institutions, working in a consortium or a group would be an option that could reduce operation costs.

Finally, we would like to emphasize that understanding enterprises' needs is not the end of the story; what is more important is how TVET institutions can absorb the findings in their educational and training programs. Since enterprises' needs vary by sector, ownership and even individual enterprise, TVET institutions should have clear strategies based on their comparative advantages and future visions, such as what their priority technical fields are and what kind of industrial human resources they would like to supply to the market. They may be able to organize brain-storming sessions to make strategies for using the survey results, but it would be desirable to have certain thoughts or assumptions about their comparative advantages and future visions beforehand and design the survey to test or reinforce them. Also, TVET institutions should keep their strategies focused but not too rigid. Since economic and industrial situations change quickly, it is suggested

that they have a management system to review the feasibility of strategy on a regular basis.

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ANNEX

Questionnaire

I. Company Overview

1. Name of company:

2. Main product:

Main product	Description of product	Share in revenue (%)
1.		
2.		
3.		
4.		

3. Type of company

<input type="checkbox"/> State-owned	<input type="checkbox"/> Private	<input type="checkbox"/> Foreign invested 100%)	<input type="checkbox"/> Joint-venture	<input type="checkbox"/> Joint-stock
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4. Nationality of investors

- Investor 1 name: % of share of capital:

- Investor 2 name: % of share of capital:

- Investor 3 name: % of share of capital:

5. Year of establishment:

6. Main customers:

Main product	Name of customers (optional)	Share in revenue (%)
1. Japanese companies in Vietnam		
2. Other countries' companies in Vietnam		
3. Local Vietnamese companies		
4. Export (Overseas customers outside Vietnam)		

7. Number of employees:persons

8. Turnover rate of employees:%

9. Structure of employees:

9.1. By level:

9.2. By school (for technical workers only):

1. Foreign employees (- Japanese employees)	.....persons (.....persons)	Hanoi University of Technology	.....persons
2. Vietnamese employees	.....persons	Hanoi University of Industry (- Vietnam Japan Center if any)	.....persons

2.1. Technical workers (Product designer, production engineers, machine operators, etc.)- University graduates- College graduates- Secondary graduates ¹⁵ (including Vietnam Japan Center)- Primary-graduates ¹⁶	(.....persons) (.....persons) (.....persons) (.....persons)	Other universities (main ones):	
		1.....persons 2.....persons 3.....persons	
2.2. Non-technical staff (Admin, accounting, logistics, sales, non-technical production line workers, etc.)	.....persons	Other technical college/school:	
		1.....persons 2.....persons 3.....persons	

II. Evaluation on Graduates of Vocational Training Schools/Programs in General (not only VJC graduates, but all graduates from vocational training schools/programs)

How do you think about Graduates from Vocational Training schools/programs in Vietnam?

Note: “Vocational training schools/programs” include vocational training programs inside universities or colleges, vocational colleges, provincial vocational training schools, vocational or employment training centers, etc.

<i>1. Working Attitude</i>	Strongly Agree		Strongly Disagree		
- Have good knowledge about 5S ¹⁷	5	4	3	2	1
- Have good practice of 5S	5	4	3	2	1
- Have good teamwork ability	5	4	3	2	1
- Follow company rules	5	4	3	2	1
- Follow operation standards (e.g. operation manual)	5	4	3	2	1
- Follow the guidance of supervisors	5	4	3	2	1
- Be independent at work	5	4	3	2	1
- Have willingness to self-improvement	5	4	3	2	1
- Participate in “Kaizen” ¹⁸ activities actively	5	4	3	2	1
- Have good entrepreneurship (e.g. cultivate new customers, new products, and any new chance)	5	4	3	2	1
<i>2. Technical Skills</i>					

¹⁵ Those who graduate from vocational secondary schools, professional secondary schools, or colleges/universities that provide technical education at secondary level. It takes 2 years to get this diploma.

¹⁶ Those who graduate from vocational training centers or other training institutions that provide technical training programs at primary level. It takes 6 months or a year to get this diploma.

¹⁷ 5S is a method for organizing a workplace, especially a shared workplace (like a shop floor or an office space), and keeping it organized. It is a reference to a list of five Japanese words which include SEIRI (tidiness), SEITON (orderliness), SEISO (cleanliness), SEIKETSU (standardization), and SHITSUKE (discipline).

¹⁸ Kaizen is a Japanese philosophy that focuses on continuous improvement throughout all aspects of life. When applied to the workplace, Kaizen activities continually improve all functions of a business, from manufacturing to management and from the CEO to the assembly line workers.

- Know how to read blueprints	5	4	3	2	1
- Have good skill and knowledge of basic technology	5	4	3	2	1
- Please also evaluate the level of the following detailed skills if they apply to your business:					
- Have good skills of machine metal processing (milling, machining, pressing, plating, heat treatment, etc.)	5	4	3	2	1
- Have good skills of forging	5	4	3	2	1
- Have good skills of casting	5	4	3	2	1
- Have good skills of assembling mold and die (grinding/polishing, assembling, etc.)	5	4	3	2	1
- Have good skills of operating plastic injection molding machines	5	4	3	2	1
- Have good skills of electronic measuring					
- Other skills (please specify).....	5	4	3	2	1
- Other skills (please specify).....	5	4	3	2	1
- Learn how to use new machines quickly	5	4	3	2	1
- Have good knowledge of quality control and assurance	5	4	3	2	1
3. General Evaluation					
- Technical and vocational training graduates satisfy employers' needs	5	4	3	2	1
<i>Other comments:</i>					

III. Evaluation on Graduates of Vietnam Japan Center (Formally-known as the HIC-JICA Course) comparing with above section II

3.1. Do you have employee(s) graduated from Vietnam-Japan Center of Hanoi University of Industry?

Yes No

(If YES, please continue with the question 3.2., if NO, please go to Question IV on the page 5)

3.2. How do you think about Vietnam Japan Center's graduates comparing with graduates from other Vocational schools?

	Much better/more than others	better/more than others	Same as others	worse/less than others	Much worse/less than others
1. Working Attitude					
- Have good knowledge about 5S	5	4	3	2	1
- Have good practice of 5S	5	4	3	2	1
- Have good teamwork ability	5	4	3	2	1
- Follow company rules	5	4	3	2	1
- Follow operation standards (e.g. operation manual)	5	4	3	2	1
- Follow the guidance of supervisors	5	4	3	2	1
- Be independent at work	5	4	3	2	1
- Have willingness to self-improvement	5	4	3	2	1
- Participate in “Kaizen” activities actively	5	4	3	2	1
- Have good entrepreneurship (e.g. cultivate new customers, new products, and any new chance)	5	4	3	2	1
2. Technical Skills					
- Know how to read blueprints	5	4	3	2	1
- Have good skill and knowledge of basic technology	5	4	3	2	1
- Please also evaluate the level of the following detailed skills if they apply to your business:					
- Have good skills of machine metal processing (milling, machining, pressing, plating, heat treatment, etc.)	5	4	3	2	1
- Have good skills of forging	5	4	3	2	1
- Have good skills of casting	5	4	3	2	1
- Have good skills of assembling mold and die (grinding/polishing, assembling, etc.)	5	4	3	2	1
- Have good skills of operating plastic injection molding machines	5	4	3	2	1
- Have good skills of electronic measuring	5	4	3	2	1
- Other skills (please specify).....	5	4	3	2	1
- Other skills (please specify).....	5	4	3	2	1
- Learn how to use new machines quickly	5	4	3	2	1
- Have good knowledge of quality control and assurance	5	4	3	2	1
3. General Evaluation					
- VJC graduates satisfy employers’ needs	5	4	3	2	1
<i>Other comments:</i>					

IV. In-company Training/Education for new Graduates of Vocational Schools after recruitment

4.1. *In which subject (e.g. 5S, specific skills, etc.) and how long do you need to retrain the graduates from vocational training schools/programs after recruiting them?*

Subject	Time (hours/frequency)
1. 5S, Kaizen...	.....hours, .....times/week, .....month
2. Business manners (following rules, standards, supervisor’s guidance...)	.....hours, .....times/week, .....month
3. Basic technologies	.....hours, .....times/week, .....month
4. Use of new machines	.....hours, .....times/week, .....month
5. ....	.....hours, .....times/week, .....month
6. ....	.....hours, .....times/week, .....month
7. ....	.....hours, .....times/week, .....month
8. ....	.....hours, .....times/week, .....month
8. ....	.....hours, .....times/week, .....month
10. ....	.....hours, .....times/week, .....month

4.2. *Is there any difference between the in-company training/education for VJC’s graduates and the ones for other graduates?*

Yes No

(If YES, please continue with the question 4.3., if NO, please go to Question V on the page 6)

4.3. *What is the difference between the in-company training/education for VJC’s graduates and the ones for other graduates?*

.....

.....

.....

.....

.....

V. Evaluation on the Capacity of Vocational Training Schools/Programs in Vietnam (including Vietnam Japan Center)

5.1. *Have you ever visited any vocational training schools/programs in Vietnam?*

Yes No

(If YES, please continue with the questions 5.2., if NO, please go to Question VI on the page 8)

5.2. How do you think about the capacity of those vocational training schools/programs you visited?

a. Name of school:..... Location:

	Strongly Agree		Strongly Disagree		
- Have good facilities	5	4	3	2	1
- Have good instructors	5	4	3	2	1
- Have good curriculum	5	4	3	2	1
- Have good practicing program	5	4	3	2	1
- Have good internship program	5	4	3	2	1
- Have good management	5	4	3	2	1
- Have good advertising for itself	5	4	3	2	1
- Have good activities to interact with firms (such as job fair, factory visits ...)	5	4	3	2	1
- The school/program often asks for our feedback about its graduates	5	4	3	2	1
- The school/program often asks us to provide internship programs	5	4	3	2	1
- The school/program often asks about our needs of graduates (quantitatively and qualitatively)	5	4	3	2	1
<i>Other comments:</i>					

b. Name of school:..... Location:

	Strongly Agree		Strongly Disagree		
- Have good facilities	5	4	3	2	1
- Have good instructors	5	4	3	2	1
- Have good curriculum	5	4	3	2	1
- Have good practicing program	5	4	3	2	1
- Have good internship program	5	4	3	2	1
- Have good management	5	4	3	2	1
- Have good advertising for itself	5	4	3	2	1
- Have good activities to interact with firms (such as job fair, factory visits ...)	5	4	3	2	1
- The school/program often asks for our feedback about its graduates	5	4	3	2	1
- The school/program often asks us to provide internship programs	5	4	3	2	1
- The school/program often asks about our needs of graduates (quantitatively and qualitatively)	5	4	3	2	1
<i>Other comments:</i>					

c. Name of school:..... Location:

	Strongly Agree		Strongly Disagree		
- Have good facilities	5	4	3	2	1
- Have good instructors	5	4	3	2	1
- Have good curriculum	5	4	3	2	1
- Have good practicing program	5	4	3	2	1
- Have good internship program	5	4	3	2	1
- Have good management	5	4	3	2	1
- Have good advertising for itself	5	4	3	2	1
- Have good activities to interact with firms (such as job fair, factory visits ...)	5	4	3	2	1
- The school/program often asks for our feedback about its graduates	5	4	3	2	1
- The school/program often asks us to provide internship programs	5	4	3	2	1
- The school/program often asks about our needs of graduates (quantitatively and qualitatively)	5	4	3	2	1
<i>Other comments:</i>					

VI. Recruitment Forecast for Technical Workers

Please fill in the rough estimates of future needs for technical workers by required skills.

6.1. University/college graduates levels (unit: persons)

	2009	2010	2013
Total demand for technical workers
Specific fields:
1. Machine metal processing (milling, machining, pressing, plating, heat treatment, etc.)
2. Forging
3. Casting
4. Assembling mold and die
5. Plastic injection molding
6. Production contro
7. Quality control and assurance
8. Others (please specify).....
9. Others (please specify).....
10. Others (please specify).....
11. Others (please specify).....
12. Others (please specify).....

6.2. Secondary/primary graduates levels (unit: persons)

	2009	2010	2013
Total demand for technical workers
Specific fields:
1. Machine metal processing (milling, machining, pressing, plating, heat treatment, etc.)
2. Forging
3. Casting
4. Assembling mold and die
5. Plastic injection molding
6. Production contro
7. Quality control and assurance
8. Others (please specify).....
9. Others (please specify).....
10. Others (please specify).....
11. Others (please specify).....
12. Others (please specify).....

VII. Suggestions for Vocational Training Schools/Programs in Vietnam in General

Do you think it is better to provide training of following subjects at vocational training schools/programs? Or is it more efficient to conduct those trainings in your companies?

	At-school training		In-company training		
1. Working Attitude					
- Knowledge about 5S	5	4	3	2	1
- Practice of 5S	5	4	3	2	1
- Teamwork ability	5	4	3	2	1
- Follow company rules	5	4	3	2	1
- Follow operation standards	5	4	3	2	1
- Follow the guidance of supervisor	5	4	3	2	1
- Ability of independent working	5	4	3	2	1
- Willingness to self-improvement	5	4	3	2	1
- Concept of “Kaizen”	5	4	3	2	1
- Promotion of entrepreneurship spirit	5	4	3	2	1
2. Technical Skills					
- How to read blueprints	5	4	3	2	1
- Skill and knowledge of basic technology	5	4	3	2	1
- Please also indicate the training needs for the following detailed skills if they apply to your business:					

- Machine metal processing (milling, machining, pressing, plating, heat treatment, etc.)	5	4	3	2	1
- Forging	5	4	3	2	1
- Casting	5	4	3	2	1
- Assembling mold and die (grinding/polishing, assembling, etc.)	5	4	3	2	1
- Operating plastic injection molding machines	5	4	3	2	1
- Electronic measuring	5	4	3	2	1
- Other skills (please specify).....	5	4	3	2	1
- Other skills (please specify).....	5	4	3	2	1
- Quality control and assurance	5	4	3	2	1
3. Other Subjects					
-	5	4	3	2	1
-	5	4	3	2	1
-	5	4	3	2	1
-	5	4	3	2	1
<i>Other comments:</i>					