

An In-depth Study on the Cooperation of Vocational Colleges and Companies in
the DVT-Program to Identify Major Strongpoints in the Institution-Industry
Linkages with Recommendations for Drafting the
New Vocational Education and Training Act.

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Abstract

The purposes of this study were to identify the occupations needing training and drawing up occupational profiles, to investigate the perception of employers, vocational teachers and administrators, current students on the DVT system and issues of vocational education and training, and to propose a narrative model of vocational education and training for drafting the new legislation for vocational education and training. There were 7 response forms (Q1, Q2, Q21, Q3, Q31, Q4, Q41) used for data collection. The samples were 666 employers, 390 teachers and administrators, and 624 students. The questionnaire Q1 was used for data collection from 408 employers to gather their opinions pertaining to the occupation needing training and drawing up occupational profiles. A Delphi technique was applied for 3 times of data collection from 258 employers by using Q2 to ensure the consistency of their responses. Conclusions were drawn from the third response. The Q21 was used for interviewing 114 employers. There was one time data collection from 390 teachers and administrators by using the Q3 and from 161 teachers and administrators by using the Q31. The Q4 was used for one time data collection from 352 DVT students and 272 non-DVT students. The Q41 was used for interviewing 209 DVT students and 112 non-DVT students. Data were analyzed by percentage, mode, mean, standard deviation, and a t-test statistic using the Statistical Package for the Social Sciences for Windows (SPSS/FW). A level of .05 was set to determine statistical significance. Results of the study indicated that the 12 occupations needing training and drawing up occupational profiles rated by the employers are electronic technicians, automotive service technicians, electricians, automotive painting and finishing technicians, automotive collision repair mechanics and technicians, agrotechnologists, refrigeration mechanics, factory automation technicians, mechanics, bookkeepers, draftsmen, and plumbers respectively. The employers, teachers and administrators, and students understood the information given in the questionnaires and positively responded to the questions. A majority of the samples agreed with the issue of regulations, mechanisms, and implementations of vocational education and training system given in the questionnaires. There was no significant difference between the DVT students and non-DVT students of the perception of the vocational education and training system. The model of vocational education and training should be divided into school-based and work-based systems in which the linkages must be regulated by law. The mechanism should be feasible and autonomous. The implementation should be a cooperation between colleges and employers. Taxes should be imposed and funneled back to employers that provide training.

Background and Rationale

Vocational education and training in Thailand has been conducted under two main agencies. They are the Department of Vocational Education (DOVE) and the Department of Skill Development (DSD). DOVE has 413 vocational and technical colleges under its jurisdiction throughout the country. DSD has its training institutes

throughout the country too. Dove mostly deals with formal vocational education and training or school-based education. DSD deals with skill training, retraining, and upgrading in accordance with their skill qualification standards. The activities of these two departments are related to manpower development of the country. However, they are seemingly working far apart from each other. The DOVE is under the Ministry of Education. The DSD is under the Ministry of Labor and Social Welfare. The newly enacted Educational Act BE 2542 (1999) which declares 12 years of basic education with several reforms pertaining to vocational education and training (VET) has paved the way for drafting a bill on vocational education and training in which will contribute to the benefit of the country.

During the years of economic growth between 1986 and 1996, Thailand experienced a shortage of technical manpower. The Federation of Thai Industries together with all manpower authorities concerned embarked upon an extensive program in all fronts to address the problems. The problems concerned those occupations that need training to overcome the shortage, the competencies needed for these occupations (occupational profiles), and the method or model of training or retraining. The regulations, mechanisms, and implementation are also included as well. A positive outcome is the closer cooperation among the institutions and the enterprises. Many of them are still in operation today but at a reduced level because of the economic crisis. Another important development in the model of vocational training is the Dual Vocational Training System which (DVT) implemented under the Department of Vocational Education (DOVE) with technical assistance from the government of the Federal Republic of Germany. This DVT program has been an endeavor as a model and mechanism in vocational training since the early 1980's pilot project on the apprentice-training center (ATC) at Ta Luang with collaboration of the Siam Cement Co., Ltd. It has grown into a nation-wide program.

The DVT programs under the DOVE are based on the network of full-timed vocational colleges securing the placement of a number of apprentices in various companies. In more cases, the companies are responsible for recruiting apprentices themselves according to a set of agreed-upon regulations. This DVT system is still new to many cooperating companies and there are still many hitches, ups and downs to be ironed out with time. One answer would be the enactment of the new VET Act to provide legal supports and procedures to regulate the system.

DOVE colleges have also come up with an organized on-the-job training system (OJT). One good example is the collective efforts (linkages) of agricultural colleges in sending students for on-the-job training with commercial agricultural establishments in groups for a training period of 25-55 days and revolving the year round. The DVT program has presently with 20,636 apprentices in 3,090 participating enterprises, representing some 15 per cent of the total VET students. The programs currently offer courses in industrial trades, retailing and business administrative assistants, hotel management, garments and jewelry. DOVE is expanding these programs hoping to reach the benchmark of 50 per cent of VET students.

The Department of Skill Development (DSD) meanwhile has successfully introduced the Training Promotion Act BE 2537 (1994) and set up of the Skill Development Fund. The Training Promotion Act allows companies to set up their own training centers that must be registered with the DSD, and further stipulates that 50% of

the training cost incurred for previously approved programs could be set against tax. After 5 years of working with this law, only 46 companies have registered and very few could make progress with the tax reduction or the proposed training cost reimbursement, simply because of strict bureaucracy and the newness of the practice. The Skill Development Fund has received support from the Thai government that has granted an initial sum of 1,000m Baht to the Fund. This Fund is presently only used for giving training loans to those in need of further training with the payback term of 6 to 24 months. The DSD, after 5 years of experience with the first Training Promotion Act, is now in the process of drafting further legislation. The new Act proposes to impose a training levy of one per cent of the monthly payroll. However, the size of the company and the upper ceiling monthly wage for this training levy are to be determined by the Act. The enactment procedure is now at the midpoint and the bill is about to be presented to the parliament.

The VET reforms at DOVE and the new Training Promotion Act together with the working of the Skill Development Fund, when put together, would have a far-reaching effect for VET reform in Thailand. There are some issues that need to be regulated and implemented in the system of vocational education and training. This study was conducted to investigate the appropriate linkages between educational institutes and enterprises and the basis for vocational education and training in order to give the principles for drafting the legislation.

Purposes of the Study

The primary purpose of this study was to identify top 12 priority occupations needing training and drawing up occupational profiles. The second purpose was to investigate the perception of employers, vocational teachers and administrators, current students to the DVT system and other issues of vocational education and training. These issues are the regulations, mechanisms, and implementation of a vocational education and training system that fits the current needs and long term requirements of Thailand. A final purpose was to propose an appropriate model of vocational education and training to assist the drafting of appropriate legislation.

Research Questions

1. What are the top 12 priority occupations needing training and occupational profiles?
2. What are the perceptions of the employers, vocational teachers and administrators, and current students on the DVT system and the issues of vocational education and training? The issues are the regulations, mechanisms, and implementation of a vocational education and training system.
3. What is an appropriate model of vocational education and training as perceived by the subjects of this study?

Limitations of the Study

During the course of this investigation, some limiting factors were encountered including the following:

1. The scope of this study was limited to finding the solutions to the situational problems as specified by the MSF and GTZ. These organizations are involved in drafting

the legislation on vocational education and training. The study team transformed their situational problems into research problems that were accepted by the organizations that sponsored this study.

2. This study was limited to the time and schedule proposed by the MSF and GTZ.

3. The instruments used in this study were questionnaires and interview forms developed by the researchers.

4. Unrelated items in the questionnaires and interview forms were removed when using inferential statistics for computations.

5. Data that were not pertinent to synthesizing of the solutions were not analyzed.

Basic Assumptions

This study was based on the following assumptions:

1. It was assumed that the perceptions of the employers or enterprises, vocational teachers and administrators, current students on DVT system and issues of vocational education and training could be measured.

2. It was assumed that the subjects of this study provided accurate perceptions that were recorded on the instruments.

3. It was assumed that data gathered from the randomly selected samples were normally distributed.

4. It was assumed that research methodology and Delphi technique were appropriate to find the solutions.

5. It was assumed that the instruments used in this study posted an acceptable level of validity and reliability.

Definition of Terms

For the purpose of this study, the terms were defined as follows:

ATC (Apprenticeship Training Centers) is defined as a center for apprentices and has an environment similar or nearly similar to the real world of work for the entire training period. It is a work-based system based on the DVT system. The trainers and responsible persons within the ATCs must be capable of delivering the real training by already having further education, training and a high degree of skill.

DOVE is defined as the Department of Vocational Education at the Ministry of Education.

Dual Vocational Training (DVT) is defined as a method or model of a work-based vocational education and training in the Federal Republic of Germany.

DVT students are the students who study in DVT programs.

Employers are the owners or managers in the private sector, whose businesses participate in the DVT programs with nearby vocational or technical colleges.

GTZ (*Gesellschaft fuer Technische Zusammenarbeit*) is defined as a German organization that assists DVT programs in the Department of Vocational Education.

Human capital is defined as the investment by companies in their manpower and human resources development that needed for their business..

MSF (Mongkut Sabha Foundation) is defined as a non-profit organization founded by King Mongkut's Institute of Technology North Bangkok.

OJT (On-the-Job Training) is defined as training carried out in the work place.

PTA (Parent Teacher Association) is defined as those associations set up to support students through staff and parents working together.

Skills Training Center (STC) is defined as an autonomous body taking in trainees from colleges with school-based system of vocational training. Within the STCs the trainees would be working in their field of specialization in a simulated environment of the workplace. The centers would also coordinate any further OJT at companies in their networks. The trainers and responsible persons working in the centers must be trained and have a high degree of skills gained in the real world of work.

Vocational and technical colleges are the vocational institutes under the jurisdiction of the Department of Vocational education (DOVE), Ministry of Education (MOE) which offer a Dual Vocational Training (DVT) programs.

Vocational teachers and administrators are persons who have been assigned to teach or administer DVT programs in their colleges.

Vocational education and training (VET) is defined as the programs to equip people will appropriate skills so they may become employable or able to perform a specific task needed for their work. The work could be a paid employment, unpaid employment, or self-employment.

Significance of the Study

This study was conducted according to the needs of the GTZ and MSF with the agreement of the DOVE. The two organizations sponsored this study and are involved in drafting the new VET legislation. The study collected, compiled and analyzed data among the enterprises or employers, vocational teachers and administrators, and students. Comparison between the perceptions of DVT students and non-DVT students would indicate the difference of attitudes of the students. The findings of this study are significant in that they will be used as a foundation for drafting legislation and drawing up occupational profiles.

Research Design

This survey research was designed to investigate the solutions to the research questions. After analysis of the situational problems, the research questions were formulated. They were formulated to find the priority of occupational training and drawing up occupational profiles, the perception of employers, vocational teachers and administrators, and current students toward the DVT system and vocational education and training. The narrative model of vocational education and training in Thailand as perceived by the subjects for drafting legislation the bill of vocational education and training was also included. Survey research using a Delphi technique seems ideally suited to this study. Questionnaires and interview forms were the instruments used to obtain personal facts, opinions, and perceptions (Kellingner, 1986, p. 586). The study dealt with employers that participated in the DVT programs with nearby vocational and technical colleges, teachers and administrators who were assigned to the DVT programs, and current vocational students who were in the DVT program and were not in the DVT program. The non-DVT vocational students were used as a control group. The chairman of MSF, DVT project manager, and research coordinator made contact both personally and officially with the administrators of the Department of Vocational Education (DOVE) and colleges to request cooperation in accessing names and addresses of the

DVT participating enterprises. Names of the colleges, teachers and administrators that were assigned to the DVT programs were given to the research team by the DOVE. There were 39 colleges selected for this study.

Instrumentation

The instruments used in this study were 7 questionnaires developed by the researchers, 3 of which were also designed for data collection by interview. The subjects provided their responses on the questionnaires and interview forms. The questionnaires were verified for content validity by a panel of five experts from the DOVE using content validity ratio (CVR) (Lawshe, 1975: pp. 563-575) and validated for reliability using alpha coefficients. Thirty subjects of each sample group were used for try-out for each questionnaire. The Statistical Package for the Social Sciences for Windows (SPSS/FW) was used for computing the reliability coefficients of the questionnaires. The acceptable results are in Table 1.

Table 1: Reliability Coefficients of the Questionnaires

Questionnaires	Alpha Coefficients
Q1 for the employers	.8455
Q2 for the employers	.8754
Q21 for the employers	.9181
Q3 for the vocational teachers and administrators	.8031
Q31 for the vocational teachers and administrators	.9195
Q4 for the vocational students, both DVT and non DVT students	.6970
Q41 for the vocational students, both DVT and non DVT students	.8209

The instruments used in this study were developed in Thai. To assure that the translation to English did not change the meanings, the researchers and a panel of experts translated the Thai versions to English and translated the English versions back to the original Thai. The Thai instruments used in this study were determined to be accurate and valid and that translation has not changed meanings. The researchers and research assistants administered the questionnaires and conducted interviews in November and December 1999.

Population and Samples

The sample of this study included the employers that participated in the DVT programs with nearby vocational and technical colleges, teachers and administrators in the colleges who were assigned to participate in the DVT programs. The current vocational students who were in the DVT programs and non-DVT students used as a control group were included in this study. There were 3090 employers or enterprises, 202 colleges, and 20,636 DVT students in the 323 DVT programs. Seven hundred employers were selected for the samples of this study. They were randomly selected by proportional sampling throughout the country. Thirty-nine colleges were selected from those that had over fifty DVT students. Ten teachers and administrators were randomly selected from each college. Ten DVT students and non-DVT students were also selected from each college. The sample sizes of this study were computed by using Yamane

method at 5 percent errors. The expected and the actual sample sizes in each group of this study are in Table 2.

Table 2: Sample Sizes of the Expected and Actual Samples

Sample Groups	Expected Size	Actual Size
Employers	700	666
Vocational teachers and administrators	390	390
DVT students	390	352
Non-DVT students	390	272

Data Collection

A letter explaining the purpose, need and importance of the study and questionnaires Q1 were mailed to each of the 700 companies. An addressed, stamped envelope was included for return of the questionnaires to the researchers. Also on-site visits were arranged by research assistants in each college to collect data from the nearby DVT participating employers which had over 50 DVT students using Q2 and Q21, an interview form, in their workplaces. Using Q3, Q31, Q4, and Q41 collected data from teachers and administrators, and students in the selected colleges. The interviews were also arranged and research assistants in each college collected data from the samples. Table 3 displays the names of colleges and number of questionnaires sent for data collection.

Table 3: Names of Selected Colleges and Number of Questionnaires Used for the Samples

Names of Colleges	Q3	Q31	Q4 (DVT+Non DVT)	Q41 (DVT+Non DVT)
1. Ta Luang	10	5	10+10	5+5
2. Rayong	10	5	10+10	5+5
3. Nakorn Sri Thammarat	10	5	10+10	5+5
4. Surat Thani	10	5	10+10	5+5
5. Minburi	10	5	10+10	5+5
6. Kanjanapisek Mahanakorn	10	5	10+10	5+5
7. Pathum Thani	10	5	10+10	5+5
8. Samut Songkram	10	5	10+10	5+5
9. Petchaburi	10	5	10+10	5+5
10. Samut Prakan	10	5	10+10	5+5
11. Donmuang	10	5	10+10	5+5
12. Chonburi	10	5	10+10	5+5
13. Chonburi Tech.	10	5	10+10	5+5

14. Pranakorn Sri Ayudhaya	10	5	10+10	5+5
15. Ayudhaya	10	5	10+10	5+5
16. Samut Sakorn	10	5	10+10	5+5
17. Kanchanaburi	10	5	10+10	5+5
18. Kanchanaburi Tech.	10	5	10+10	5+5
19. Nakhon Pathom	10	5	10+10	5+5
20. Nakhon Pathom Tech.	10	5	10+10	5+5
21. Nakhon Panom	10	5	10+10	5+5
22. Ubon Ratchathani	10	5	10+10	5+5
23. Ubon Ratchathani Tech.	10	5	10+10	5+5
24. Udon Thani	10	5	10+10	5+5
25. Udon Thani Tech.	10	5	10+10	5+5
26. Nakhon Ratchasima Tech.	10	5	10+10	5+5
27. Nakhon Ratchasima	10	5	10+10	5+5
28. Nakhon Ratchasima Voc.	10	5	10+10	5+5
29. Phitsanulok	10	5	10+10	5+5
30. Bung Phraphitsanulok	10	5	10+10	5+5
31. Phitsanulok Tech.	10	5	10+10	5+5
32. Chiangmai	10	5	10+10	5+5
33. Chiangmai Tech.	10	5	10+10	5+5
34. Lumpoon	10	5	10+10	5+5
35. Songkhla	10	5	10+10	5+5
36. Hadyai	10	5	10+10	5+5
37. Phuket Tech.	10	5	10+10	5+5
38. Phuket	10	5	10+10	5+5
39. Bangkok	10	5	10+10	5+5
Total	390	195	780	390

Table 4: Number of Returned Questionnaires which were Useable

Questionnaires	Q1	Q2	Q21	Q3	Q31	Q4 DVT+Non DVT	Q41 DVT+Non DVT
Number	408	258	114	309	161	352 + 272	209 + 112

Data Analysis

Data were analyzed by descriptive statistics and inferential statistics using the Statistical Package for the Social Sciences for Windows. The following procedures were thoroughly carried out.

1. Returned questionnaires (Q1) from the employers or enterprises were analyzed to find the priority of occupations by ranking from high to low frequency. The analysis results were presented in a form of rank order. There were 34 occupations in rank order. These procedures were used to answer the first research question

2. Returned questionnaires (Q2) from the employers or enterprises were analyzed to assess the perceptions on the issues of vocational education and training by using percentage and ranking from the data. Mode was used to compute the relevance of the responses for Delphi technique. Mode of each choice or alternative of each item was certified as the most relevance of the subjects to that item. This criterion was used when data were in nominal scale. There were three rounds of data collection in the use of Delphi technique. After data were analyzed from the first round of data collection using mode, the results were sent with the questionnaire back to the subjects and asked for responses again. This was the second round of Delphi data collection. The subjects could insist their responses or change their responses based on their own decisions when they viewed the other responses from mode and the ranked alternatives of each item. When the subjects sent the questionnaires to the researchers, data were analyzed again. Then the questionnaires were sent back to the subjects for the third round of Delphi data collection. Results form the analysis of the third round responses were used for synthesizing to answer the second research question. There were 258 responses in the first round of data collection. The second round and the third round were 172 and 155 responses respectively.

3. Returned responses forms (Q21) from the employers or enterprises were analyzed to assess the perceptions on the issues of vocational education and training by using mean and standard deviation. Data were in a 10 point-rating scale.

4. Returned questionnaires (Q3) from the teachers and administrators were analyzed to assess the perceptions on the issues of vocational education and training by using mode of each choice or alternative of each item. Mode was certified as the most relevance of the subjects to that item. The alternatives were ranked by mode. This method was used when data were in nominal scale.

5. Returned response forms (Q31) from the teachers and administrators were analyzed to assess the perceptions on the issues of vocational education and training by using mean and standard deviation. Data were in a 10 point-rating scale.

6. Returned questionnaires (Q4) from the students were analyzed to assess the perceptions on the issues of vocational education and training by using mode of each choice or alternative of each item. Mode was certified as the most relevance of the subjects to that item. The alternatives were ranked by mode. This method was used

when data were in nominal scale. The subjects were divided into two groups, DVT students and non-DVT students. Their responses were separated for data analysis.

7. Returned responses forms (Q41) from the students were analyzed to assess the perceptions on the issues of vocational education and training by using mean, standard deviation, and a t-test statistic was used to compare between the mean scores of DVT students and non-DVT students. Data were in a 10 point-rating scale.

Quantitative mean score of each item was classified to match with qualitative values as follows:

1. Mean scores of 1.00-2.00 means the least agreement or very low level.
2. Mean scores of 2.01-4.00 means less agreement or low level.
3. Mean scores of 4.01-6.00 means moderate agreement or moderate level.
4. Mean scores of 6.01-8.00 means much agreement or high level.
5. Mean scores of 8.01-10.00 means the most agreement or very high level.

8. Suggestions and answers from the open-end question were analyzed by using a content analysis method. The contents were classified by the issues of the research questions, regulations, mechanisms, and implementations of vocational education and training. The suggestions and opinions of each group of the samples were reported in a form of description.

Findings

1. The 12 occupations that need training and occupational profiles rated by the employers or enterprises are electronic technicians, automotive service technicians, electricians, automotive painting and finishing technicians, automotive collision repair mechanics and technicians, agrotechnologists, refrigeration mechanics, factory automation technicians, mechanics, bookkeepers, draftsmen, and plumbers respectively. They pointed out that the government should declare the occupational priority for training and drafting occupational profiles.

2. The employers or enterprises and vocational teachers and administrators strongly agreed with the information given in the questionnaires. Their perceptions of agreement were confirmed by the interviews and the Delphi technique. They placed a high value of agreement with the given information that could be used as a basis for drafting the legislation.

3. The students rated at a high level on the perception of vocational education and the DVT system. However, there was no significant difference between the DVT students and non-DVT students on the perception of vocational education and training system in Thailand.

4. The issues of regulation, mechanism, and implementation of vocational education and training system in Thailand were placed a high value for drafting the bill. The model of vocational education and training should be proposed and agreed with involved parties before proceeding to the drafting process.

5. The DVT system was rated as a good model that could be applied to fit the needs and culture of Thailand. Models of vocational education and training in other countries should also be studied and could be applied as well.

Conclusions

The following conclusions are based on the findings of this study.

1. The employers wanted the government to declare the occupations that are in need of training and to draft occupational profiles.

2. The employers, teachers and administrators, and students understood the information given in the questionnaires and positively responded to the questions. Majority of the samples agreed with the three issues purposed in the questionnaires; regulations, mechanisms, and implementations of vocational education and training system. There was no significant difference between the DVT students and non-DVT students on the perception of the vocational education and training.

3. The model of vocational education and training should be divided into school-based and work-based systems which they must be regulated by law. The employers and enterprises pointed out to the issue of regulations, mechanisms, and implementations as follows:

Regulations: The Vocational Education and Training Act should be promulgated as soon as possible. The government should enforce the law transparently and equally to every company. They were willing to support the bill. The Act should state the objectives of vocational education and training as well as specifying ways in which students may all have equal opportunity of access. They agreed with the DVT system but the system needed adjustment to suit the Thai work ethic.

Mechanisms: The body responsible for vocational education and training should comprise three parties, public sector, private sector, and PTAs. The body should be autonomous but subject to government policies. The ultimate responsibility must be the government. Companies were willing to support vocational education legislation subject to the condition that it would not harm their business.

Implementation: The Vocational Education and Training Act should be feasible to implement and clear to the practitioners. The parties involved were the channels of implementation. The government must play a key role in terms of policy maker. Companies and colleges play the role of executors to implement the policies under the mechanisms stated in the law. The PTAs play the role of supporters. An annual report or program evaluation of vocational education must be conducted before the end of fiscal year and used as a tool for annual support from the government.

The teachers and administrators pointed out to the issue of regulation, mechanism, and implementations as follows;

Regulations: The DVT system will work effectively when there is clear regulation for practitioners. The Vocational Education and Training Act must state the processes for dealing with the enterprises clearly. The government as a policy maker must state the policy clearly. They would like to see the same understanding in the rules and regulations of the involved parties.

Mechanisms: They need sufficient funds to run the programs. The present mechanism needs more improvement both in term of regulations to implement the programs and facilities to manage the programs. They also need more training in vocational program management. They hesitated to point out that the DVT system could solve the current problems of the country. The method or process, which is the mechanism of the system, needs adjustment to fit the Thai work ethic.

Implementation: They played a part in the implementation. They need more training in research and evaluation of the vocational programs. They had strong feeling

that the DVT programs would be effective but the government will have to play a key role in implementing the system. They pointed out that they could not see sufficient benefits to the companies currently participating in the present DVT system. This could be the major cause of the lack of cooperation from companies. The linkages should be established by law.

The suggestions and comments of both the DVT and non-DVT students were described by a content analysis method. The students pointed to the issue of regulations, mechanisms, and implementation as follows:

Regulations: They wanted to make sure that when they graduate they could find a job and get paid according to a legal pay scale. They wanted to work and study to earn some money but the work should be related to the field of their study. The work contract must be followed strictly. By law, they would receive benefits as an employee of the company.

Mechanism: They wanted to understand the system of vocational education and benefits of the DVT system compared to the others. They have seen the lack of cooperation between the colleges and the companies. They had a feeling that the companies only wanted to protect their businesses and were not sincere about training them.

Implementation: They wanted to work in a safe environment with good work atmosphere in which they could learn and be able to develop their knowledge, skills and attitudes toward work. Training in the workplace should be meaningful to their career and be of benefit. The educational institute should assign an outstanding teacher as a tutor while a student is undergoing practical training. The teacher should be able to help the student when they faced a problem in training.

Recommendation

Based on the results of this study, the following recommendations are made.

1. There should be profiles of occupations that fit the need and culture of Thailand. Vocational qualifications (VQs) and occupational standards used in the profiles should be imposed by law. The need for occupational training should be studied and updated regularly to fit current needs.

2. By the year 2002 (B.E. 2545) and in accordance with the Education Act B.E. 2542, every vocational trainee will be given more basic education equivalent to Grade 12. In upper secondary education, there should be choices of general, comprehensive and technical or vocational education. A trainee in the technical or vocation school will therefore have two alternatives. The first choice is a school-based (or knowledge-based) stream whereby the trainee would undergo VET training not less than 20 per cent (1 ½ days/week) of the total learning time. These trainees in their final year of Grade 12 may have to undergo some form of skills training at an STC. The second choice is a work-based (or the skill-based) stream whereby the trainee would undergo training not less than 60 per cent (3 days/week) of the total learning time. During the basic skill training process, education and training can be delivered under the school workshop scheme, and a further training period with the enterprise or industry-institution scheme with real production or real on-the-job experience. This skilled-based stream is better suited to the establishment of the Apprenticeship Training Center (ATC) at or with companies. This is known as the DVT system. DVT-Trainees need not attend the STC Centers.

3. The STC are to function as an independent body taking in trainees from any applying applicants from institutions within the country with school-based system in batches, each batch for example for an STC period of one month or more. The cooperating institutions would have to rearrange their learning schedules to fit in with the STC timetables. Within the STC the trainees would be working with the simulated environment of the world of work in their lines of work and disciplines. The centers will also coordinate any further OJT at the enterprises in their networks. The trainers and responsible persons working in the STC must be trained and have experience with the real world of work.

4. The Apprenticeship Training Centers (ATC) are training centers for apprentices and have an environment similar or nearly similar to the real world of work for the entire training period of 3 years. Again the trainers and responsible persons within the ATCs must be capable of delivering the real training by already having further education, training and experience for their tasks. The total numbers of STCs will far exceed the ATC centers in the long run as the STCs will have to cater for students and trainees from technical colleges mainly of the knowledge-based, within the country. The ATC centers are for apprenticeship training only, thus fewer.

5. It will be absolutely necessary to have the cooperation with the enterprises in establishing these centers and that will require legal supports for sustainability.

6. The mechanism to establish and administer these centers needs to be defined and implemented with the setting up of the Skill Development Fund (SDF). Such a scheme is quite universal in several countries that have reached a certain plateau of development whereby the public, the private and the trainee sectors join hands in carrying out the building up of the national human capital.

7. It has already been proven that the investment for the human capital is as important as the capital investment and with a great rate of return on investment. Every multi-national company knows this fact quite well and will therefore go ahead with it with their own resources. The small and medium size companies do however have difficulties with their cash flow and must be specially assisted by the operational modes of the Skill Development Fund.

8. Taxes should be imposed and funneled back to the employers that provide training.

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1. Prof. Boonyasak Jaijongki, Chairman of this research project
2. Ms. Srinuan Komolavanij, Coordinator of this research project
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