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Dual or Complemental in Vocational Training: which concept would be suitable for TVET Vietnam?

Abstract

The dual system is considered as a successful and well-known model of TVET all over the world. It might be a proper solution in order to solve skills mismatch and skills shortage, which the Vietnamese industry names as a "main obstacle" for developing and also expanding their manufacture in Vietnam. In the report about the innovations in quality apprenticeships in the United States, Aring with collaboration of La Rue has mentioned the case of German companies in the USA such as BMW, Volkswagen and Siemens, which have brought the dual model to the countries where they have settled their plants and have implemented the model but using a different name e.g. ***Quality apprenticeship*** (Aring 2014, 5). Another example is the case of the company Bosch in TVET Vietnam, which has brought this model to Vietnam and collaborated with a state-run vocational school (Lilama2) to train the workforce for itself. Unfortunately, TVET Vietnam stays on the drive of the supply-side until now, in which the TVET institutions design and provide the training course, based on their perception without paying attention to skills demand from the Vietnamese industry (JICA 2014, 1). The reason for this obstacle is that the TVET institutions have difficulty to access the need of the Vietnamese industry. Consequently, many Vietnamese companies struggle to re-train their newcomers after recruitment. This is the form of In-house-training or training at work, conducted right after recruitment and directly at the workplace. In order to save time and costs in the term of training, these training courses normally have the tendency to focus on functionality, which are designed tightly fit to the job at the workplace, for example, welder and machine assembler training, which only took place for 3 or 4 months to adapt to the demands of the workplace. Therefore, training-at-work has been implemented informally in most of Vietnamese companies. In comparison, with the dual model in Germany, it has a similar character: It is directly connected with the workplace and qualified mentors are responsible for the instruction. However, the company has difficulty in defining skills and knowledge, which could be used as reference for developing a road map of training and controlling the quality of these training courses. Therefore, TVET institutions in Vietnam provide merely training courses, which are only built on their perceptions of necessary skills and knowledge about the careers in the industry instead of sufficient consultants from employee about the employer's skills demands (JICA 2014, 1). The reason is that they have difficulty to grasp the know-how on demand of workforce from industry. The identification of skills needed is not a simple analysis or synthesis process because the nature of work is nowadays more complex than what it used to be and tends to become *an interactive work* that requires exchange, involves experience and context, and is considered as the engine of knowledge economies (Aring & Goldmark 2013). The need of a didactic for work analysis, in which know-how on the demand of the workplace would be clarified, is very urgently needed at present. A strategy for catching up the tacit knowledge of the profession would

become a useful information resource, which would be exchanged between stakeholders in the TVET-system in order to enhance transformation about the quality of TVET-training and expectations of industry. Furthermore, it also supports the coordination in training workforce between them and reduces training costs.

This paper based on my research finding and the final part of my doctoral thesis will contribute to the actual state of the Vietnamese TVET and the concern about the development of curricula in Vietnam, particularly the research on the identification of professional competence through analysing the case study of a Vietnamese company. It also aims to provide suggestions for job analytical processes which can enhance the information exchange between the two sides of TVET Vietnam (state-run schools and Vietnamese industry sector) about the skills needed and shows that both stakeholders are involved in designing and conducting the training curriculum.

Keywords: *Dual VET, Complemental VET, Quality apprenticeship in Vietnam*

1 Introduction: Status quo of TVET in Vietnam and challenges in constituting the coordination between stakeholders

Since the start of the economic renovation in 1986, Vietnam has achieved remarkable success such as GDP growth, becoming a middle-income country or getting more involved in world trading. Vietnam became firstly a member of the ASEAN free trade area, then joined the WTO (World Trade Organization) and ratified the free trade agreement with the US, and a Trans Pacific Partnership. As a result, Vietnam became a hub for foreign investment and manufacturing in Southeast Asia. Many huge international companies like Intel or Samsung have decided to set up their plants in Vietnam. Moreover, Vietnam has gotten involved in the global supply chain shown by the fact that labels like “made in Vietnam” appear more often on many European and American products. At the beginning of the industrialization process, the Vietnamese economy absorbed purely FDI investments from foreign companies which just intended to “perform simple assembly or processing of light industry products for export such as garment, footwear, and foodstuff” (Ohno 2010, 5). In this stage, Vietnam had not faced the challenges about the demand of a qualified workforce because most of the companies required only simple and labor-intensive workers, who could handle routine work which is already divided into many single steps. At that time, Vietnam could easily provide production-line workers in order to fulfil the demand of industry. Subsequently, Vietnam stepped up to the next stage, called “initial FDI absorption”, which asked the country to provide a semi-skilled workforce, which could handle conventional machines to manufacture certain parts of machines or use hand tools in order to assembly electronic devices. This increased the need of “high-level industrial human resources such as excellent technicians and production-line leaders who can improve production operations” (Mori, Thuy & Hoang 2009, 1). Therefore, many firms have tried to start their own in-house training courses directly at the assembly lines or tried to divide their work processes into many simple steps

and trained their workforce functionally according to the specific task at the certain work position before they got started at the workplace.

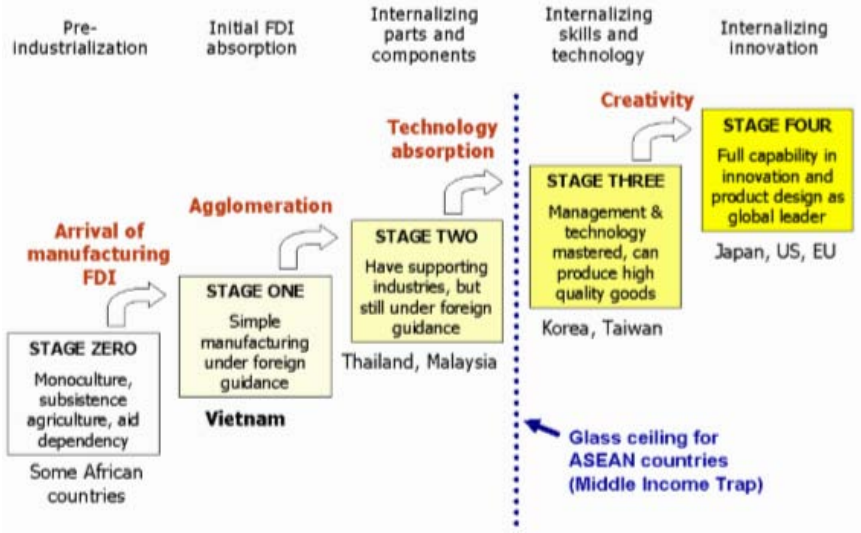

Figure 1: Stages of industrialization process (Ohno 2006, 4)

Recently, Vietnam has reached out to the third stage of the catching-up to Industrialisation-process when the country began to initiate supporting industry in order to provide components for these assembly lines or take part in more value added manufacturing process such as product development or design. It results in an increased demand of a skilled workforce which is called “Monozukuri”, who is defined as a craftsman with his spirit of “excellence, skill, spirit, zest, and pride in the ability to make things, good things, very well” (Saito et al. 2010, 1), also a workforce, which is “fully empowered and trained to deal with different situations creating an elevated sense of ownership” (SApartners 2012, 3). Unfortunately, the difficulty of overcoming the lack of skilled workers, who have the “ability to design and operate factories efficiently; maintain, adjust and repair machines; design parts; produce precision molds and dies” (Ohno 2006, 9) still stays behind the story of Vietnam’s economic miracle. Because there are almost all reports about Vietnam human resource of many NGOs, which have already addressed this problem and stated that it is a main obstacle to enhance the competitiveness of Vietnamese economic and to attract more FDI. The low-wage labour force is not an advantage of the country anymore when Vietnam now got into the second stage of industrialization process and needs to well prepare for the next step by breaking the “Glass ceiling” of Middle Income Trap (see Figure 1) if Vietnam really wants to move itself up: “For further industrialization, it is essential for Vietnam to develop highly skilled industrial human resources who can increase productivity and manufacturing value-adding before the country loses the advantages of a low-wage labour force” (Mori, Thuy & Hoang , 1). Otherwise, Vietnam will remain stuck in this trap. Lack of skilled workforce is the most popular statement about Vietnam’s human resource, broached in reports about human resource since 2012. After the STEP survey, the Vietnam World Bank has indicated that most employers expect job specific technical skills from their employees (Bodewig et al. 2014, 33). This is also a relevant requirement when they seek their work force (see Figure 2).

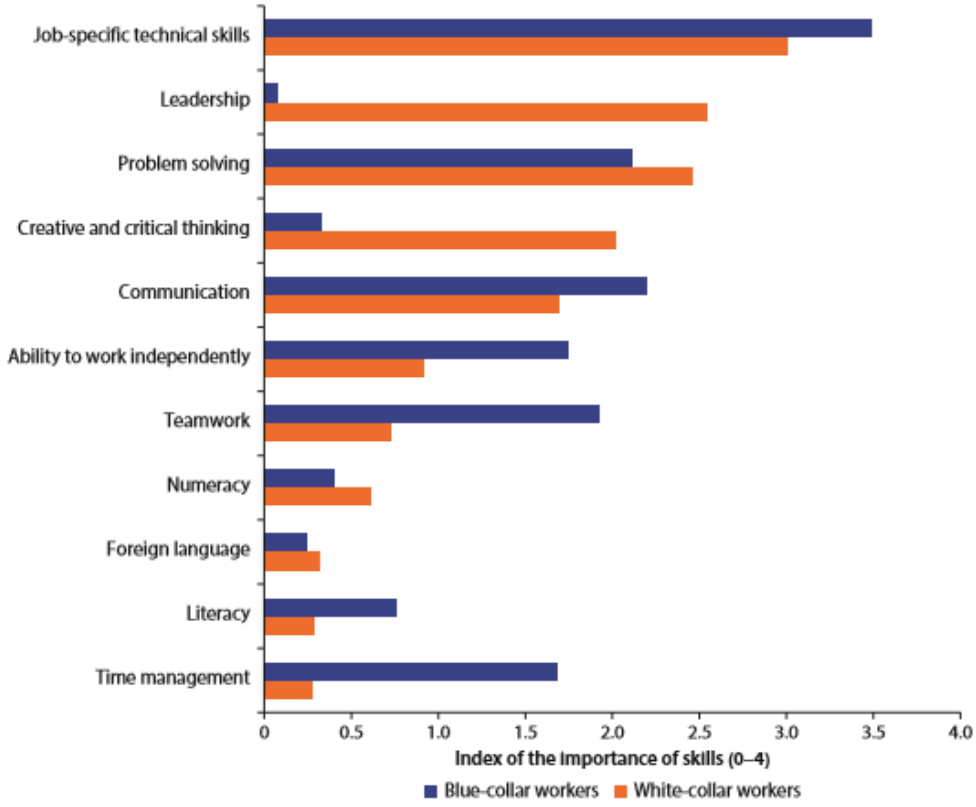

Figure 2: Employers' View of Importance of Job-Related Skills for Blue- and White-Collar Workers. (Bodewig et al. 2012, 33)

Unfortunately, they have to struggle in recruitment workers who possess right skills for the right job. Therefore, a phenomenon "they encounter skill gaps and shortages in the context of expanding enrollments in universities and in vocational schools, some employers choose to provide on-the-job training for their workers" (Bodewig et al. 2014, 17). The form of on-the-job training is the most popular reaction from industry in order to overcome the skills gap and the skills shortage in TVET Vietnam. The author has already mentioned this informal learning a in a former paper, which can be divided into two groups (Vo 2018, 2):

Group 1: ***Initiative training***. It is usually conducted at those Vietnamese firms, which demand just on labor – intensive assembly such as furniture manufacturing, textile industry or even in some kinds of construction and mechanical engineering. This form of training happens in a very short time from several days to maximal one week because the firm has already simplified their producing line in small steps in order to make the initiative training easy to conduct at the workplace. This type of training helps the firm to solve the shortage of labor on a short-term basis. However it does not create the labor's motivation because the tasks at the workplace are repeatable and very simple. Therefore, the workers have the feeling of boring and do not see the chance of developing in their career paths. They could easily leave their workplace and find another job.

Group 2: ***Adapted training***. *This type of training is expected to become the Vietnamese version of "Quality apprenticeship"* when the Coordination between stakeholders in TVET Vietnam is substantially developed instead of "the present loosing cooperation" between the TVET-institutions and the Vietnamese companies when the TVET-institutions try to send their students as much as possible to the firms in order to conduct the internship without the intention about professional competences' development, which their students have to achieve after finishing their apprenticeship. Meanwhile, the Vietnamese companies do not know how to deal with those trainees, come from TVET-institutions. They just want to train the trainees, who have proper knowledge and really want to stay after the internship. Because "The purpose of such training is to deepen the technical skills acquired in formal education and training and to adapt employees to the individual workplace" (Bodewig et al. 2014, 17). This kind of training is organized under the Mentoring between a skilled worker and a trainee. This training takes place at least three to even twelve months, and attempts to advance skills of newcomers, who are freshly recruited from vocational schools or colleges. This type of training is conducted at firm, where requirements at workplace are usually more complex such as operating CNC or other conventional machines, assembling the electrical board of fly cams, etc. At the presence, *this training is implemented after recruitment*. However, it should be happened earlier in the period of learning at TVET-institution if the concept of complementary in TVET training is established and approved.

However, both of those ways of training are considered as informal learning, although one of them, for example, the adapted training reinforces acquired knowledge and former skills through application and experimentation at the workplace also deepen the technical skills acquired in formal education. It can also help individuals to bridge the gap between knowledge and skills. Informal learning under the type of e.g. in-house training is the main form of training, firstly existed in FDI companies and become by tendency more popular in many Vietnamese companies in recent years. But, according to the article five, in chapter one of the newest Vietnamese vocational Training law, all kinds of training activities, which are implemented outsides the TVET-institution, are informal.

Lack of skilled workforce is shown as the main obstacle to Vietnamese industry when most of them have answered that they have really difficulty in recruiting workers and this state is increasing from time to time (see Figure 3) because "Vietnam's skill development system today is not as responsive as it needs to be and is suffering from disconnects among employers, students, and universities and vocational schools" (Bodewig et al. 2014, 17).

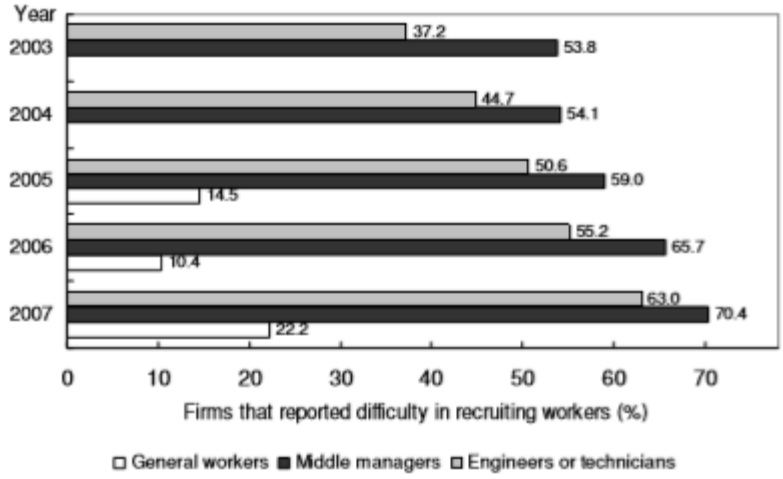

Figure 3: Difficulties in Recruiting Different Types of Workers in Vietnam (Mori, Thuy & Hoang 2009, 5)

In comparison, with another country in ASEAN, it is obvious to see that the problem of lack of skilled workforce in Vietnam is worse than in other ASEAN countries because more than 60% the firms said that they have difficulty in seeking adequate workforce for own demand (see Figure 4).

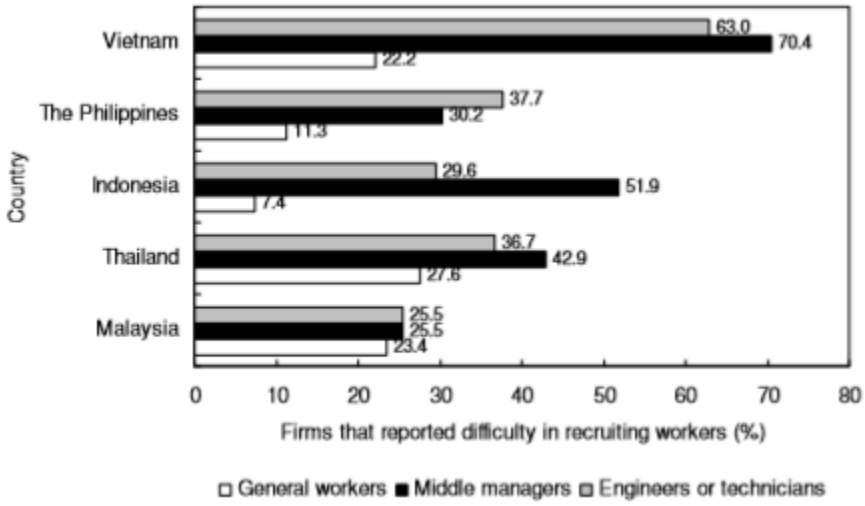

Figure 4: Difficulty in recruitment all kinds of workforce in Vietnam in comparison with other ASEAN countries. (Mori, Thuy & Hoang 2009, 5)

The reason why "Vietnam's skill development system today is not as responsive as it needs to be" is that TVET institutions have difficulty in "determining the skills needs of industry" (JICA 2014, 6) and the system stays still in the form of Supply-Driven Skill Development, in which the TVET institution provide their training course based on their perception about industry without paying sufficient attention to employers' skills demands. This is the main constraint, which is determined by JICA: "The lack of detailed information on specific skills needs at the occupation level and the dynamic changes in skills demands make it hard for

TVET institutions to grasp the demands of industry when it comes to skilled workers" (JICA 2014, 6). From this determination, it is necessary to initiate coordination between stakeholders in TVET in order to inform them each other better about skills demands because "Information is the oxygen of responsive skills development systems" (Bodewig et al. 2014, 147). But the question is how TVET institutions can build partnership with industry, in order to access the detailed information on specific skills needs at the occupation level easier and use it as foundation to design their training courses and implement an up-to-date curriculum to fulfill the demands of industry. Because "Education and training providers cannot make good choices on the programs to develop and offer without good information about employers' skill needs, conditions in the labor market, and returns to certain fields of study" (Bodewig et al. 2014, 147).

1.1 From In-house training to partnership in TVET Vietnam – the certain response to the lack of qualified workforce: The Story of MUTO Vietnam

The MUTO, an FDI company from Japan, is capable of molds, dies, and plastic-injection-molding parts and has implemented the In-house training of mold and die technicians since 1998 when the company had to deal with a shortage of skilled workers. Firstly, it just intended to provide the training course for intern workforce and meet its own demand. The company recruited novices or graduates from vocational schools or colleges even engineers from universities and trained them according to in-house training courses on designing and making molds and dies, which is designed to adapt to their real needs. Some of them were sent to Japan to deepen their proficiency in the field of designing and making molds and dies. Furthermore, the company expands their training activities to another FDI companies now, which have the same demand on the field of making molds and dies. This story is a popular example about individual effort of a foreign company in Vietnam, which try to overcome the shortage of skilled workers by providing training course for its own. This is also the actual way of many Vietnamese companies in the field of technology, which have to try the best to create skilled labour workforce for their own. Unfortunately, this type of training is implemented outside the TVET-institutions and without coordination with a state run TVET institution therefore it could be not acknowledged, according to article five in the law of Vietnamese TVET.

1.2 Partnership – the main form of cooperation in TVET Vietnam.

If the story of MUTO was an individual effort, there is another kind of cooperation in TVET Vietnam: ***Partnership***. A brilliant and successful example is the partnership between the firm Bosch and the TVET institution – LILAMA II College. This example is usually cited in many case studies about a successful model of cooperation in TVET Vietnam. In this partnership, the firm serves as a host for practical training and providing experts also consultants in order to help the TVET institution – the LILAMA II College to catch up with the skills need demand in industry. Then, the college updates their curriculum and takes on teaching theory and giving fundamental practice their students before they get into practice period in the firm.

This model can be looked like *dual model* in Germany. It works really well in Vietnam but its' impact to whole TVET system in Vietnam is not really obvious. Because the company intends to employ just *twenty four students* for both of training careers: mechanical engineering and mechatronics every year. This is a very small number with limited careers. Therefore, it seems to be the way which the company Bosch has tried to solve the shortage of skills-workers by itself, more than being a solution for improving the whole TVET-system in Vietnam because this model has not been expanded to other companies, especially Vietnamese companies. Moreover, this model could not be applied in Vietnamese companies because the obstacle is the capacity of domestic companies, which are not enough personal, experiences and financial to build up a training apartment within the companies. Thus, it prevents them to conduct this model.

Furthermore, in many industrial zones in Vietnam, there exists a kind of cooperation as a network between a training centre, founded only for priming labour force within the zone and promoting suitable training courses to meet actual demand of the firms, e.g. The Vietnam-Singapore Technical Training Centre (VSTTC), which was established in 1997 when the Vietnam-Singapore industrial zone (VSIP) was settled. This centre has a duty to offer training courses in specific fields (such as electrical maintenance; mechanical maintenance; machining; electronics; mechatronics) and supply skilled workers to enterprises in VSIP. The training form in this centre is normally set up as a 6-month modularized training course. In 2005, this centre was merged with Binh-Duong state-run Vocational School and became Vietnam-Singapore Vocational school since August 2006. After that, it was developed to Vietnam – Singapore College at the beginning of 2008. If the former centre could only provide vocational primary training courses, it can now offers two and three-years of study to their students. Thus, their graduates would get vocational or college diploma after graduation. This form could be named the ***clustering*** between Stakeholders in TVET, which had been mentioned by Xiong in his Ph.D.-Thesis "Clustering in the field of vocational education" (Xiong 2013)

In reference to the newest Vietnam vocational law, which has been in force since November 2014, building partnership between a state-run TVET institution and a firm or networking between companies of the industrial zone and TVET Centre with the participation of a state-run institution has the advantage, that certificates and diplomas from this type of training are acknowledged. It makes the transition's process of the workers between domestic companies easier. But in many cases, the workers have to spend a trial period at least one month when they start to work at another company. In the meanwhile, the type of In house training such as MUTO Vietnam is until now not acknowledged unless the MUTO establishes the TVET-institution within its company. Because the training on-the-job is just acknowledged when it is conducted in cooperation with a state run TVET-institution or directly in the TVET-institution, which is built in the company and approved by the state, according to the article nineteen in the Vietnamese law of TVET.

1.3 Internship, Quality Apprenticeship – A new model for TVET training and higher vocational education

Nowadays, many FDI companies in Vietnam such as Intel, Bosch, Samsung, Honda etc. intend to provide many programmes of internship and aim at students, who are learning in vocational colleges or universities and looking for a chance for getting to know the real working world in industry. Most of them try to prepare their next generation of workforce by attracting talented young students through internship programs. This is also a kind of adaptive training to help their potential candidates getting acquainted with the firms' environment and have more time to select the most suitable candidates for their demand. One remarkable example is the Samsung Talent Programme, initiated by Samsung Vietnam, the programme permits Vietnamese universities (Hanoi Technology University, Hanoi National University and Posts and Telecommunications Institute of Technology) to send students to the company with the purpose of learning and doing research or thesis and it also gives financial support to talented students to help them get promotion in their study. Moreover, the company has implemented the ***Quality Apprenticeship*** when it cooperated with local TVET institutions with the aim of training their workforce directly at the workplace according to work-based curricula. This activity is a kind of the programme, structured learning which formally combines and alternates learning in the work place with learning in an education or training centre. REE, another company in the field of refrigeration has also implemented this model. One of them - the IT Corporation FPT has even founded a private university since 2006. This could be considered as *the initiation of the concept of complementary in TVET Vietnam*. The FPT University offers full academic bachelor, partnership program, postgraduate, polytechnic in main fields of IT and business. The university has advantage when it embedded its' experiences in IT field to develop their own curricula and have enough proper facilities and instructors, who are required to have two years' working experience in the IT industry, to train their students more effectively. This art of training is usually based on work-based curricula, which are developed by industry and remain up-to-date frequently. The implementation of the training is complement between theory and practice, because it based on *one curriculum, which is designed for two places: TVET-institution, where the students learn theories and company, where they spent their apprenticeship under the mentoring of skilled consultants*. Moreover, the addition and exchange of facilities and personnel within the organisations would be easier. Thus, the complementary in TVET training proves an effective impact on training quality.

1.3.1 Concept for Enhancing Cooperation in TVET Vietnam

As mentioned above, lack of detailed information on specific skills needs at the occupation level, which can be referred to the National Vocational Qualification Frameworks (NVF) and the dynamic changes in skills demands, which already happened in industry, is the main obstacle of TVET Vietnam in the shifting process from supply-driven skills development to demand-driven skills development, in which curricula should be built on the sufficient attention to employers' skills demands, which come from real working world instead of perception of TVET institution about working world. Moreover, in the context that Vietnam

has not yet established the national qualification framework for whole popular occupations exception to some professions, which are consulted and acknowledged such as Automobile technology, Welding within the project "Implementing the strategic framework and the action plan for human resource development in Greater Mekong Sub-region", funded by the Asian Development Bank (ADB) (General Department of Vocational Training 2012, 20), or CNC-Mechanic, which is built under the consulting and funding of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). (General Department of Vocational Training 2012, 18). It is difficult when stakeholders in TVET Vietnam really want to found the Coordination together because they do not understand clearly their part in the coordination. In the case of the company MUTO, the occupation of mold and dies technician has already existed over 20 years but until now is not officially well-known. Furthermore, the present capacity of domestic companies has not yet enough to settle a private TVET-centre for own.

Mori has wondered what would speed up the spill-over of knowledge and technology from enterprises to TVET institutions. He has answered: "One proposal is to carry out TVET programs in cooperation with FDI enterprises. The direct interaction between TVET institutions and FDI enterprises would shorten the time for technology spill-over. It would also promote direct exchange of information about labor demand and supply. In this way, TVET institutions could adjust their curricula up to the needs of industry and produce graduates who are ready to enter the workforce" (Mori, Thuy & Hoang 2009, 13). From his argument, stakeholders in TVET need a mean such as professional profile, serves as a reservoir of information about the set of skills needs and relevant knowledge about a profession, which exits in real working world, and also as memorandum of understanding (MOU) about the guaranty of training's quality between them. Hence, it would be used as an information resource in developing curriculum at TVET-institution or training plan at the firm. However, this training could critically become a functional training if this curriculum is just developed in order to train the workforce for a specific profession, which exists in a certain firm. That's why these professional profiles should be introduced and developed by a leading firm (see Figure 5) or a group of firms in the same professional field. In addition, those profiles would be approved by professional associations, a group of companies or skilled workers (engineers, technicians) in a same professional area and should be acknowledged before using it as information resource for designing curricula and training plans, which will be conducted in TVET institutions, companies or both. This concept has the target that curriculum and training plan have the same reference – the professional profile. It is also the intention of Ministry of Labour, Invalid and Social Affair Vietnam (MoLISA), to "strengthen public relation and dissemination in order to improve awareness of purpose, process and benefits of standards on occupational skills and to evaluate occupational skills for enterprises" (General Department of Vocational Training 2012, 22). The establishment of an occupational profile would be "…undertaken by enterprises and employers through Councils of Occupational Skills" (ibid.). The profiles for present occupations in the industry should provide detailed information about skills, proficiency, required knowledge in line with NQFs and also predictions or visions about development of the job in the future. The establishment of such profiles would be a great step forward in developing the curriculum, improve

guidelines and orientation for training in both of places: TVET-institutions and firms, also share this information within all relevant TVET stakeholders. Thereby, stakeholders in TVET Vietnam could share their parts in implementation of training the workforce. However, it emerges a dilemma, which the author has recognized through the last field trips that the Vietnamese companies do really know what they expect on skills of the worker but they do not know how to describe them in detail. In another sides, the TVET-institutions are not ready to help Vietnamese companies in order to constitute and document these skills needs. It lacks the same concern between TVET-institutions and firms. This stand of dilemma is already identified in the report of JICA Vietnam "TVET institutions need to collect a certain level of detailed information by themselves. Nonetheless, many of them do not have the capacity to collect and analyse comprehensive information on specific skills needs. Moreover, not all enterprises may provide comprehensive feedback on their skills needs to TVET institutions. It is a time-consuming job to collect and analyse comprehensive data of specific skills needs in all different departments and section" (JICA 2014, 6). Therefore, the cooperation would hardly be founded without this intersection between Stakeholders in TVET Vietnam.

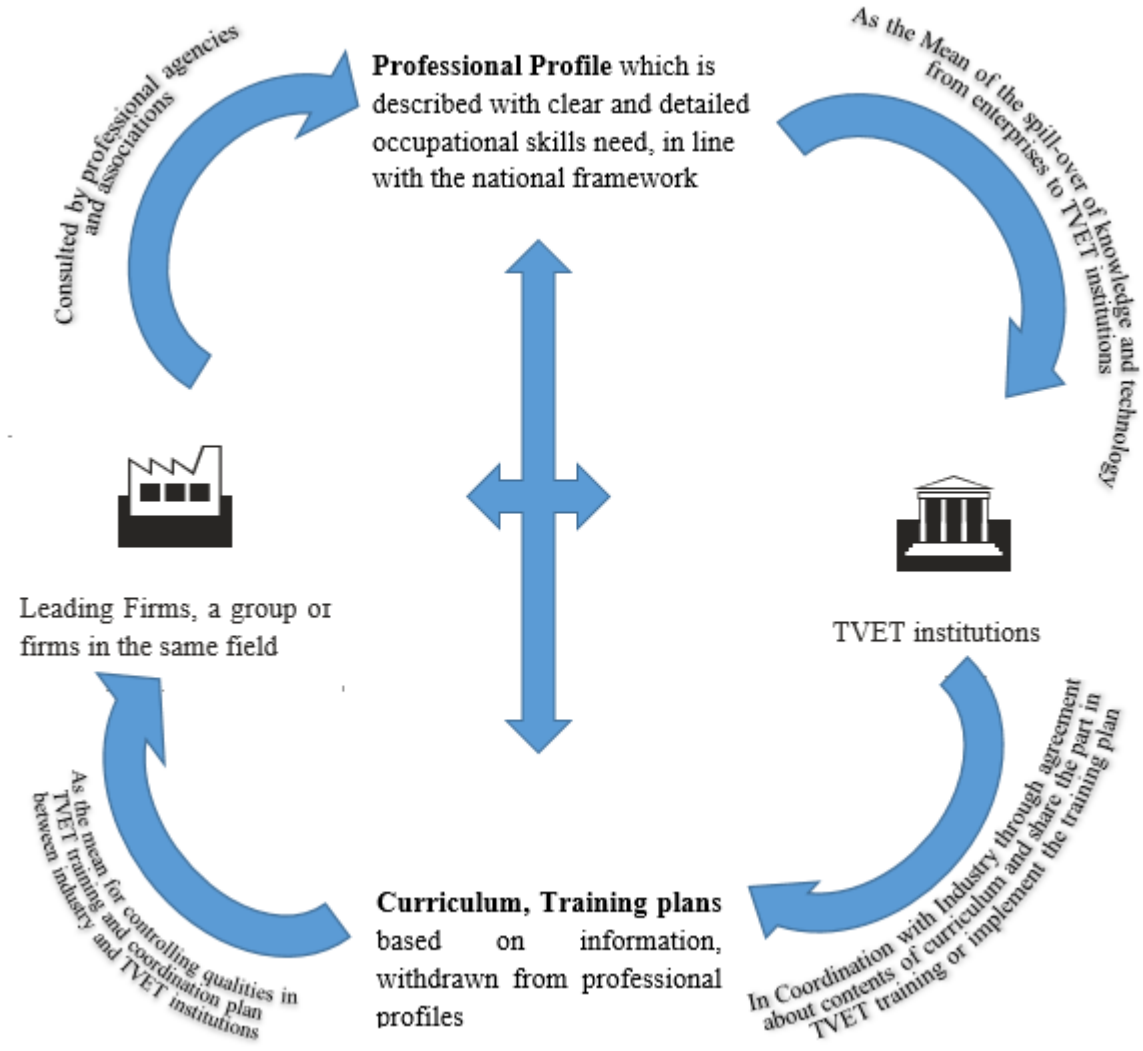

Figure 5: Proposal concept of Coordination between stakeholders in TVET Vietnam through professional profiles and work-based curricula. Source: own research

Once a curriculum is established and based on a professional profile, roles of stakeholders in TVET system would be clarified. Thus, the coordination with industry through the agreement about contents of curriculum would be found in order to share the part in TVET training. The industry do really know what the students have learnt in the institutions and easier in developing a training for them in order to strengthen practical skills of students. Therefore, the process of spill-over knowledge and technology from industry to TVET institution would be accelerated. They will share their part to each other: TVET institution would teach their students mainly theoretical background about the profession according to their work-based curricula, also provide basic practice at the workshop while firms would be the host for advanced practices and giving internship programs (see Figure 6). The former school-based curriculum has also a good chance to upgrade itself in order to meet demands of the industry. In addition, instructors and their institution could also improve their proficiency when they

have occasions to communicate with the Vietnamese industry and get to know modern technology in firms in order to widen their professional know-how and use it to instruct their students and also advance their learning materials. There would not be two separate work-based curricula and school-based curricula anymore. Instead, both stakeholders - institution and firm would use only one curriculum in order to share their parts, facilities and personnel in training their students. Hopefully, the profile of profession would bridge over the current disconnection and become the link between the curriculum in the TVET-institution and training plan at the firm. It also eases the Know-how's transfer of modern technology from industry to TVET-institutions, enhances the modernisation of learning materials, supports the advancing of faculty members' professional competency. On the contrary, the companies would recruit more workforce, who have adequate knowledge and basic practical skills. Then, they just have to focus on advancing practical skills of those trainees. Moreover, the TVET-institution would help them in analysing skills needs at the workplace and so far describe the road map for developing those careers, which could be referenced for paying wage and evaluating the productivity of their workforce.

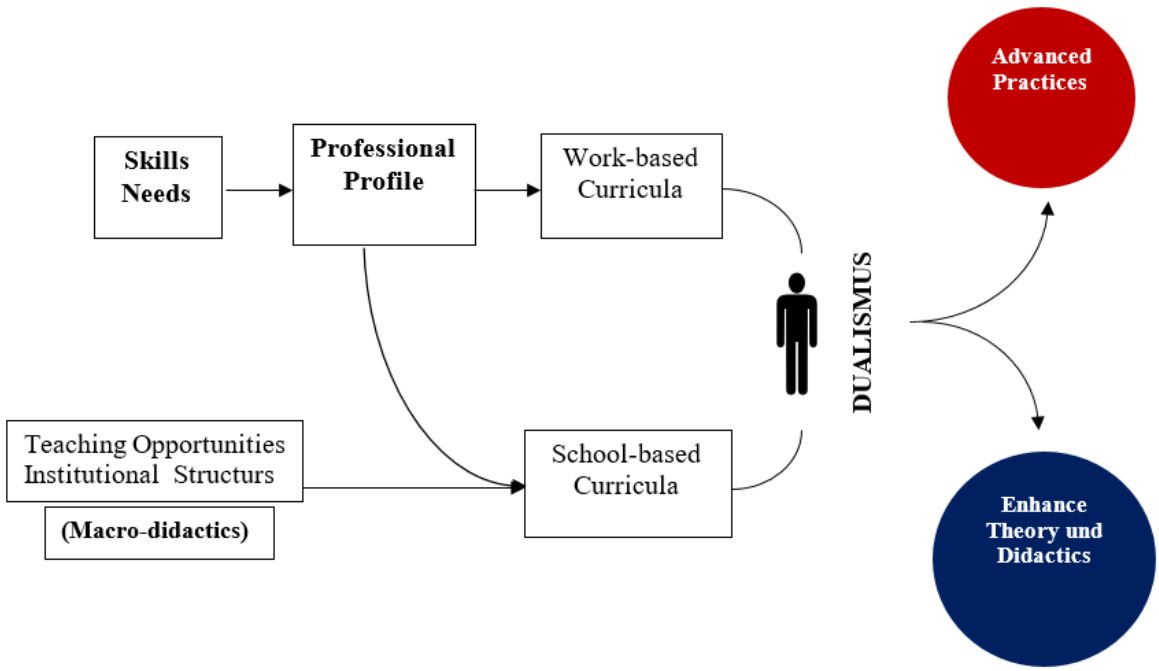

Figure 6: Complemental impact of professional profile on TVET system. (Own research).

2 Conclusions

The issue of professional profile is the ultimatum in advancing coordination between TVET institutions and Vietnamese industry. However, in many domestic companies, at least the firms that I have visited, it is very difficult to describe detailed information about their skills need. They have no personnel to analyse scholarly their work and demands. It leads to big barriers when they look for a chance of making the coordination with TVET institution in

order to implement together the TVET training because they cannot picture exactly their requirements and the set of skills needs is still to be their intuition about the career. This is a kind of state "I know everything I want but I cannot document it". In addition, those profiles would be a comprehensive mean in the communication within stakeholders of Vietnamese TVET. On the other side, TVET institution aim only to send their students to firms with only one purpose to conduct the company internship, which is one of subject in their curriculum. Instructors from institution are not interested in achievement of their students' proficiency after the period of internship. However, both of them really need to coordinate together to approach high quality in TVET training. The TVET institutions want to access and gain up-to-date information about occupations at firms to upgrade their curriculum and also to give their staff a chance to expand their professional horizon. Reversely, the firms need to know clearly novice's ability in order to plan in-house support training. That's why TVET Vietnam urgently needs a mechanism for coordination, in which stakeholders would agree to each other through the professional profile about their part in training plan, based on common and consistent curricula as a bridge for information exchange during the coordination. The institutions have not invested too much to equip expensive and modern machines such as CNC-processing centre for their workshop because they just have to offer their students basic training on conventional machine at TVET School. Afterwards, the students' skills would be improved on industrial machines continuously at firms. Both of these activities of training is led by one curriculum, which could be divided into work-based curriculum at TVET School and training plan in the firm. However, both of them have the same reference – the professional profile. It would save time and money because the firms don't have to conduct adaptive training their novice like now. But, at first, the firm requires support from the TVET scholars in order to analyse their working world and convert them into written form such as set of skills need and tacit knowledge which relates to background for building those skills and roles as foundation for further development professional proficiency of the worker in the future.

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CITATION:

Xuan-Tien Vo (2019). Dual or Complemental in Vocational Training: which concept would be suitable for TVET Vietnam? In: TVET@Asia, issue 13, 1-16. Online: http://www.tvet-online.asia/issue13/VO_tvet13.pdf (retrieved 30.06.2019).

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