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TRANSLATIVE ADAPTATION OF FOREIGN SKILLS FORMATION MODELS:

CASES OF JAPANESE DEVELOPMENT COOPERATION IN SOUTHEAST ASIA

RESEARCH PROJECT -
JAPANESE EXPERIENCES OF INDUSTRIAL DEVELOPMENT AND DEVELOPMENT COOPERATION:
ANALYSIS OF TRANSLATIVE ADAPTATION PROCESSES [VOL. 3]

Edited by : Junichi Mori and Izumi Ohno

Translative Adaptation of Foreign Skills Formation Models: Cases of Japanese Development Cooperation in Southeast Asia

Research Project - Japanese Experiences of Industrial Development and Development Cooperation: Analysis of Translative Adaptation Processes [Volume 3]

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FOREWORD

Industrial development is a key driver of structural transformation in developing countries. It is expected to generate sustained incomes, create productive and decent jobs, and promote knowledge spillover and technological innovation. As the twenty-first century advances, the landscape of industrial development has become more complex, with the digital revolution, the expansion of global production networks, and a strong drive toward realizing inclusive and sustainable industrial development. Furthermore, the current multiple crises confirm the important role that industry plays in enhancing economic and social resilience, thereby promoting human security.

In today's interconnected world, where we need to acquire more sophisticated capabilities for learning foreign knowledge and technologies, developing countries face significant challenges. Now, more than ever, we should pay attention to the practical aspects of industrial development. However, there is a paucity of studies that analyze the process of learning and selectively adopting and adapting foreign technologies and knowledge, tailored to country-specific situations while taking account of the current global environment. More concrete analyses are needed on such aspects of industrial development to serve as useful references for policymakers, practitioners, and researchers in developing countries.

In this regard, Japan is positioned to make useful intellectual contributions. Japanese catch-up experience since the Meiji modernization and during the period of post-war economic development has been characterized by the learning and internalization of Western technologies and knowledge, which entailed efforts to adapt them into Japan's own culture and system. This process is called "translative adaptation." Moreover, the Japanese approach to industrial development has a unique feature of placing a focus on components of the real sector such as human resources, technologies and firms. These experiences and perspectives have been reflected in Japanese industrial development cooperation as it has been extended to various regions including Asia, Latin America, and Africa.

Against this background, the Japan International Cooperation Agency (JICA) Ogata Sadako Research Institute for Peace and Development (JICA Ogata Research Institute) has launched a research project entitled "Japanese Experiences of Industrial Development and Development

Cooperation: Analysis of Translative Adaptation Processes." It aims to identify the characteristics of the Japanese experience of industrial development and development cooperation, while drawing exquisite lessons for facilitating translative adaptation in developing countries. The research project focuses on three key areas: (i) industrial policy, (ii) quality and productivity improvement (QPI), and (iii) skill development. These are the areas where Japan has accumulated expertise through its own experience in industrialization and development cooperation. Three thematic books are produced by the JICA Ogata Research Institute, along with a synthesis book entitled *Introducing Foreign Models for Development: Japanese Experience and Cooperation in the Age of New Technology*, published by Springer.

In the three thematic books, this volume focuses on skill development, with particular reference to the experience of Japanese industrial development cooperation for strengthening technical and vocational education and training (TVET) institutions and related systems in Southeast Asia. The human-centered approach is one of the key features of Japanese development cooperation. Based on selected case studies, it examines whether and how Japanese development cooperation for TVET has been implemented to facilitate the processes of local learning and translative adaptation of the acquired knowledge by counterpart agencies and partner countries.

I strongly believe that the findings of this volume will serve as useful references for policymakers, practitioners, and researchers in developing countries, as well as the international community.

Tokyo, Japan

Yoichi MINE
Executive Director,
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CHAPTER

1

Introduction

Junichi Mori and Izumi Ohno

1. Background

Skill development is one of the standard policy measures to support industrial development, together with growth in firm capacity, finance, FDI attraction, marketing, business linkages, innovation, and so on (Ohno 2014). It is also one of the fields where various donor agencies, including Japan and other bilateral donors as well as international organizations, have been actively supporting countries through development cooperation. Skill development can be realized through various activities, such as in-company training, training and education at technical and vocational schools, courses at science and engineering universities, and other forms of training and education.

This book focuses on the technical and vocational education and training (TVET) aspect, which is designed to supply skilled workers, in particular intermediate workers including the technicians and skilled machine operators required for industrialization (Mori 2019), with specific reference to the experience of Japanese industrial development cooperation. Based on selected case studies, the book examines whether and how Japanese industrial development cooperation for TVET has been implemented in such a way that it contributes to facilitating the processes of learning and local customization of the acquired knowledge by counterpart agencies and aid recipient countries—from the perspective of 'translative adaptation' as developed by Keiji Maegawa, a Japanese economic anthropologist (Maegawa 1998)[1].

As Joseph Stiglitz stresses, knowledge is the most important source of

[1] See Ohno (2024) and Ohno (2022) for more details of the theory and concept of Maegawa's translative adaptation and their application to development context.

growth. What separates developed from developing countries is not just a gap in resources, it is a gap in knowledge (Stiglitz 1999; World Bank 1999). Development entails learning how to learn. In the context of industrial catch-up by a latecomer country, learning occurs through an interactive process of 'foreign' and 'indigenous' elements where developing countries acquire foreign knowledge and technology, adapt these to country-specific circumstances, and eventually institutionalize them for local scaling-up. Therefore, it is important that the acquisition and diffusion of knowledge takes place locally and adapts to local differences in culture and economic practice (Stiglitz and Greenwald 2014). This is exactly in harmony with Maegawa's concept of translative adaptation.

As we outline in Chapter 2, in current academic and policy discussions on skill development and TVET the 'employer-led skill formation system' based on the liberal-market economy, is regarded as a common solution to the need to acquire such skills (Froy 2013, 346; Lloyd 2008, 178), and has often been promoted in developing countries through donor-supported projects. However, a close look at the reality on the ground suggests that developing countries are struggling to make employer-led skill formation systems work (e.g., Allais 2012). Many developing countries tend simply to import an employer-led skill formation system as a normative model without analyzing its adaptability in local contexts (Steiner-Khamsi 2014). Part of the reason for this is that the concept of translative adaptation is not sufficiently analyzed and the knowledge that is gained from it thus remains as 'tacit' knowledge, not externalized as 'explicit' knowledge (Nonaka and Hirose-Nishihara 2018). More serious attention and concrete understanding of the process of indigenous learning through translative adaptation is necessary in both developing countries and donors.

Here, key questions are: (i) what are the conditions and mechanisms that would enable a latecomer country to absorb foreign knowledge and technologies effectively, merge them into domestic elements and develop country-owned, localized systems for their diffusion; and (ii) how development cooperation can facilitate or hinder such processes. This volume tackles these questions through case studies on skill development, in particular TVET, giving specific attention to the experience of Japanese industrial development cooperation.

As we discuss in Chapter 2, Japanese development cooperation exhibits strong real-sector concerns, with a focus on industry structure

and components of the market economy such as human resources, technologies and firms, in the concrete context of targeted sectors and regions. Toru Yanagihara, a Japanese development economist, calls such features 'ingredients' approach, in contrast to the 'framework' approach of donors such as the World Bank, the United Kingdom (UK), and the United States (US) who tend to focus on the general improvement of regulatory frameworks and business environments (the level-playing field concept) (Ohno 2013; Yanagihara 1998). In addition, it is often noted that Japanese development cooperation gives importance to *gemba*—the place where real action takes place (such as factories and crop fields)—and provides 'hands-on' advice and knowledge transfer through joint work, based on the analysis of local situations (Ohno 2013). Therefore, if properly designed and implemented, there is the potential that such features of Japanese development cooperation may contribute to the promotion of greater translative adaptation through a co-creation process with partner countries (Ohno 2016), compared with the normative framework approach that tends to promote the adoption of international best practices (Steiner-Khamsi 2014).

However, few studies have sufficiently analyzed what the processes of translative adaptation are and what key factors of a hands-on approach are applicable in the field of skill development. Some earlier studies have attempted to identify characteristics of Japanese development cooperation projects (e.g., IDCJ and IC Net 2003), but they have limitations. First, they tend to focus only on successful cases. There should also be comparisons with cases where Japanese development cooperation activities were not able to take a hands-on approach (e.g., Yamada 2002), but little research has been carried out on why the delivery mode could not be adopted or why it did not work. Second, previous studies have not provided in-depth analyses on the process of translative adaptation in a specific subject area as they have simply compared projects across various fields.[2]

[2] IDCJ and IC Net (2003) analyzed the characteristics of development cooperation provided by the Japan International Cooperation Agency (JICA) in the light of capacity development, ownership, and knowledge acquisition. They also listed some limitations, which included: (i) concentration on successful cases; (ii) dependency on interviews with project counterparts conducted by national consultants as a sole information source; and (iii) insufficient comparison with other donor activities. This study neither specifically focuses on industrial development nor provides an in-depth analysis of translative adaptation processes, even though it includes the cases of King Mongkut's University of Technology in Thailand and the Sepuluh Nopember Institute of Technology in Indonesia, which are often presented as successful.

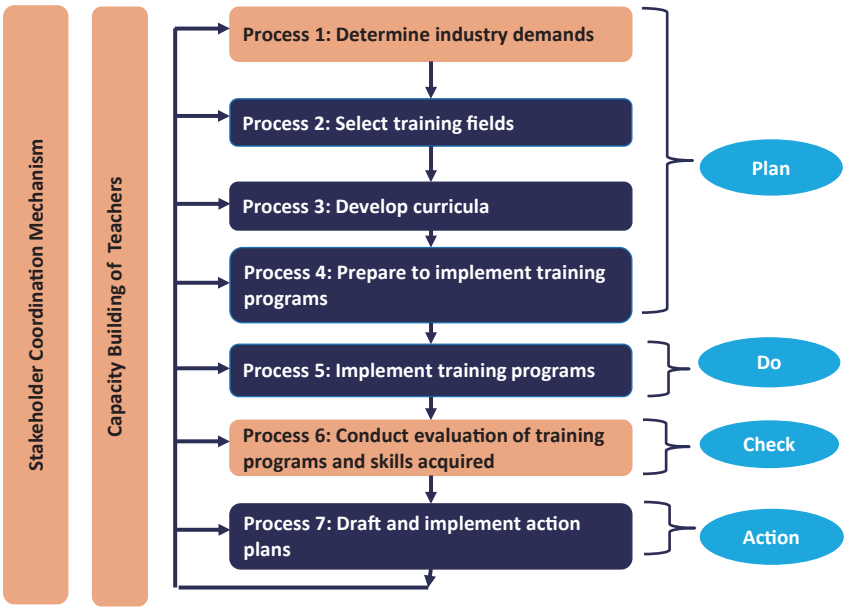
Finally, the complementarity between the framework orientation and the ingredients orientation has not been sufficiently analyzed. In fact, Japanese development cooperation activities are not necessarily limited to ingredients but sometimes aim to address frameworks, such as the development of skills standards. Without an in-depth analysis of its structures and characteristics in specific situations, it is hard to reproduce a hands-on approach to successful translative adaptation.

As a result, the Japanese ingredients and hands-on approach remains as 'tacit' knowledge, not externalized 'explicit' knowledge (Nonaka and Hirose-Nishihara 2018). This means that it has not been well recognized as a policy option for developing countries, even though it may help them promote translative adaptation. Therefore, comprehensive and subject-focused analyses are required to clarify what the process of translative adaptation is like and to identify what elements or conditions of an ingredients and hands-on approach are essential requirements in the promotion of this process.

2. Overview of the Research Project

This book is one of three volumes of practical research on Japanese industrial development cooperation—featuring industrial policy, skill development, and quality and productivity improvement (*Kaizen*)—that report on the research project, 'The Japanese Experience of Industrial Development and Development Cooperation: Analysis of Translative Adaptation Processes.'

This volume analyzes the translative adaptation process of donor-supported development cooperation, paying special attention to the experiences and characteristics of Japanese industrial development cooperation projects in the field of TVET that lead to skill development. From this research we draw implications for ways to enhance industrial development cooperation and facilitate the learning and translative adaptation processes in developing countries. A team of academic and development experts collected and analyzed the required data through interviews with key actors, such as national and local policymakers, the teaching and management staff of TVET institutions, and employers. More specifically, we asked the following research questions: (i) what sort of models, systems, or experiences has Japanese development cooperation relied on; (ii) what are the characteristics of Japanese development



Source: Elaborated by the authors based on JICA (2014, 10).

Figure 1.1. Processes Focused on in This Research

cooperation in terms of its approach and targets; (iii) what is the process of 'translative adaptation' in developing countries like and what factors encourage or discourage this process; and (iv) how can development cooperation promote translative adaptation and what changes are required in its approach to make this happen.

To achieve the above research objectives, we adopted qualitative research as our main research strategy since this approach allows researchers to conduct an in-depth analysis of the perceptions of key actors. We also used multiple case studies as the research method since they help us develop a comprehensive picture of the causal process surrounding a particular phenomenon by taking into account information gained from many levels (de Vaus 2001). As Figure 1.1 shows, the five case studies described in this volume focus on the following four processes in TVET that government and TVET institutions in developing countries often struggle to establish and improve. These include: (i) employer engagement; (ii) skill evaluation; (iii) teacher capacity development; and (iv) the development of workable coordination mechanisms among key actors, including TVET institutions, employers, and national and local governments.

The case studies are the projects or programs supported by Japanese development or economic cooperation agencies—such as the Japan International Cooperation Agency (JICA), the Japan External Trade Organization (JETRO), and the Association for Overseas Technical Cooperation and Sustainable Partnerships (AOTS)—in three Southeast Asian countries that have been receiving Japanese development cooperation over the long-term. The counterparts of these projects or programs in recipient countries also have experience in interacting with other donors through development cooperation or other activities, which enable us to gain a comparative perspective of Japanese cooperation for TVET and other donor-supported activities. The five case studies cover various fields such as: (i) TVET programs for youth after general education (Initial vocational education and training, IVET); and (ii) TVET programs related to the machine industry, including automotive, motorcycle, electric and electrical, and machine tools, which are often regarded as drivers of industrialization and upskilling (ILO and ADB 2014; ILO 2020).

3. Structure of the Volume

Following this introductory chapter, the volume begins with an overview of the theories concerning current development cooperation for skills formation, presents the results of the case studies, and finally draws implications for future industrial development cooperation for skill development. More specifically, Chapter 2 explains what theories underlie the current development cooperation for skill development and sets up a common analytical framework across the five case studies.

The remaining chapters present the case studies listed in Table 1.1. Chapter 3 examines the case of the industry/employer engagement system at Hanoi University of Industry (HaUI) in Vietnam. HaUI received technical guidance from Japanese experts based on a training process management model applied to TVET institutions in Japan, in particular in the Project for Human Resource Development of Technicians at the Hanoi University of Industry (HaUI; the HaUI-JICA Project). Chapter 4 focuses on the development of the TVET teacher training programs at the Center for Instructor and Advanced Skill Training (CIAST) in Malaysia. Taking advantage of long-term Japanese development cooperation, CIAST has not only become a core of the Malaysian TVET teacher training system but has also been acting as a regional training hub. Chapter 5 examines the development of the national skills evaluation system in Vietnam,

Table 1.1. Processes and Country of Selected Cases

Process	Country		
	Malaysia	Thailand	Vietnam
Industry Engagement			HaUI-JICA Project
Curriculum and Teaching Method Improvement			
Teacher Training	CIAST Project		
Skills Evaluation		AHRDP	HaUI-JICA Project/SESPP
Local Industry Engaement and 5S and safety training			Dong Nai Manufacturing HRD Project

Source: Elaborated by the authors.

which incorporates elements of both Japanese and Western systems. The Vietnamese government has been developing national skill tests with technical assistance provided under the HaUI-JICA Project and the Skill Evaluation System Promotion Program (SESPP) supported by the Ministry of Health, Labour and Welfare of Japan. Chapter 6 explores the skill evaluation sub-program of the Automotive Human Resource Development Project (AHRDP) in Thailand. This is a unique case which attracted strong commitment from large Japanese multinational corporations (MNCs) as part of the framework of Japan-Thailand Economic Partnership Agreement (JTEPA). It is also comparable with the case in Vietnam presented in Chapter 5. Chapter 7 explores a local initiative to develop manufacturing (called *Monozukuri* in Japanese) human resources through multi-stakeholder coordination in the south of Vietnam. This is a case of inter-regional cooperation between Dong Nai Province of Vietnam and the Kansai Region of Japan, supported by the Japanese government (Ministry of Economy, Trade and Industry) and development cooperation agencies.

Based on the results of the above case studies, Chapter 8 discusses cross-cutting themes, including the factors that promote translative adaptation and the potential impacts of digital technologies on development cooperation for upskilling, and provides our conclusions.

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CHAPTER

2

Translative Adaptation and Development Cooperation for Skill Development

Junichi Mori and Izumi Ohno

1. Introduction

As we discussed in the previous chapter, a critical aspect of learning is that it takes place locally and must adapt to local differences in culture and economic practice (Stiglitz and Greenwald 2014). This means that one country's best practices in education and training cannot be simply transferred to another country, either between developed countries or from advanced to less developed countries, because of differences in economic, social, cultural, and institutional contexts (Turbin 2001). In other words, 'translative adaptation' is required (Maegawa 1998; Ohno 1998).

This chapter examines the concept and processes of translative adaptation and its relationships with cooperation for skill development. To this end, the next section discusses the trends in skill policies and issues associated with policy borrowing, taking an employer-led skill formation system as an example. Following this foundation, Section 3 explores the concept of translative adaptation as alternative method of policy making, and Section 4 examines the relationship between development cooperation and translative adaptation. Section 5 then discusses the role of translative adaptation in the changing world of work, and our conclusions are presented in Section 6.

2. Trends in Skill Policies and Issues Associated with Policy Borrowing

This section provides an overview of skills policy trends, in particular the employer-led skill formation system, and their underlying theories. Then, it discusses potential problems that may be caused when developing countries directly import or borrow the models formulated in developed

countries without adaptation.

2.1. Diffusion of an employer-led skill formation system

The current practice of development cooperation for skill development and TVET shows that the 'employer-led skill formation system' has been widely promoted in developing countries. This is in part because foreign donors have encouraged recipient countries to adopt it as 'international best practice' in their role as the 'transfer brokers' of policies (Stone 2001). This system has been developed mainly based on the experiences of the 'liberal-market economies' (Chakroun 2010; Wheelahan 2017)[1] which assumes a preponderance of employer-led training initiatives in TVET (Ashton 2004). In this system, in-company or company-financed training is regarded as a more effective means for upskilling than government intervention in the process of securing a supply of skilled labor. Even though public TVET programs are accepted as a secondary measure to the employer initiatives priority, they have to be improved in accordance with employer skill needs (Booth and Snower 1996; Almeida and Cho 2012).

The following standard policy measures are often suggested when operationalizing an employer-led skill formation system: (i) development of a common framework of TVET, including the national qualification framework (NQF) and national occupational skill standards based on the competency-based training (CBT) system, which are presumed to precisely reflect employer skill needs; (ii) improvement of the labor market information system; (iii) the establishment of an employer-led coordination function, such as a Sector Skills Council (SSC) as in the United Kingdom (UK) or Industry Skill Council (ISC) in Australia; (iv) the development of a quality assurance system; and (v) the promotion

[1] Hall and Soskice (2001) divided the types of institutions into two groups in their varieties of capitalism (VoC) approach: 'liberal market economies' include Australia, Canada, Ireland, New Zealand, the UK, and the United States, and 'coordinated market economies' include Austria, Belgium, Denmark, Finland, Iceland, Germany, Japan, the Netherlands, Norway, Sweden, and Switzerland. This distinction was made in reference to the way in which firms resolve coordination problems regarding industrial relations, vocational training and education, corporate governance, inter-firm relations, and employee capacity development. However, Witt and Redding (2013) pointed out that the typologies suggested by the VoC approach cannot properly categorize Asian countries because the Asian business system varies considerably from European and American ones.

of autonomy along with outcome-oriented budgetary support for TVET institutions (Eddington and Toner 2012; ILO 2008; Lloyd 2008). These measures have become the orthodoxy of TVET policies in international development. McGrath (2012) has called them a 'vocational education and training (VET) toolkit.'

Employer-led skill formation systems and their supportive policy measures are underpinned by a theoretical view called the 'supply-side approach' (Froy 2013; Lloyd 2008). This approach ascribes problems related to skill formation, such as skill mismatch, to the supply-side, including governments, education and training institutions, and individuals (Almeida, Behrman, and Robalino 2012; Booth and Snower 1996). This argument is based on a key assumption of human capital theory that firms and individuals are forward-looking and make rational decisions to maximize their benefits in a perfectly competitive market (Becker 1993). They should be willing to hire skilled workers if they are available in the labor market, and invest in upskilling, aiming at higher profits, productivity, and welfare unless there are market failures. Thus, this approach emphasizes that governments should foster the 'economic relevance' of TVET programs, which means that students should acquire the skills required by employers, contribute to their productivity improvement, and be pleased to obtain jobs offered by employers (Almeida, Behrman, and Robalino 2012).[2] The supply-side approach has been penetrating into developing countries, given that several countries across Asia and Africa have been trying to introduce an employer-led skill formation system (Boahin and Hofman 2014; King 2012). This system has been promoted through development cooperation or research projects (ADB 2009; World Bank 2013a).

2.2. Issues and alternative approach to an employer-led skill formation system

Certainly, it is important to pay attention to employer skill needs in

[2] Carbonnier, Carton, and King (2014, 5) stated that the World Bank and OECD take a 'instrumental approach' to education, an approach that pays attention to economic return on investment, and is identical to the supply-side approach. On the other hand, they explained that UNESCO considers education as a human right. ILO is in the middle, due to its tripartite governance structure. However, they also noted that this classification is simplistic, given that there is a diversity of opinions even inside those organization.

formulating TVET programs. But there is a need to examine whether an employer-led skill formation system, derived from a foreign model based on the liberal-market economy, is immediately transferrable to developing countries. In fact, many of them are struggling to materialize this system by facing common challenges, such as the difficulty in mobilizing the contribution of employers, even though many foreign donors promote this as international best practice (e.g., Boahin and Hofman 2014; Mori 2019).[3]

The challenges of the employer-led skill formation system are articulated in another theoretical approach to skill formation, namely the 'demand-side' approach (Desjardins and Rubenson 2011; Lloyd and Payne 2002). This approach attributes skill problems not only to the supply-side but also the demand side, with a focus on employer demand and skill utilization (Ashton et al. 1999; Brown 1999; Brown, Lauder, and Cheung 2020).

For one thing, this approach points out that firms do not always invest in training and skills in prompt response to technological changes or to opportunities to move up in value chains (Ashton and Green 1996; Payne and Keep 2011). Against the assumption of human capital theory, firms are not always forward-looking with respect to upskilling because of the structural issues deeply ingrained in capitalism today, such as rapid globalization. Cappelli (2012, 86) points out that 'only theorists believe that individual businesses always do what is in their best interest.' Thus, firms in developed countries are becoming less motivated to provide internal training (The Economist 2017), in part because rapid globalization has enabled them to source trained human resources from various places (Brown, Lauder, and Ashton 2011). Moreover, fewer firms provide internal training in developing countries (Almeida, Behrman, and Robalino 2012, 112-13). In short, firms are becoming less patient in investing in upskilling.[4]

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[3] Indeed, there may be a case that employer-led training systems could work in developing countries. For example, Misbah et al. (2019) concluded that the CBT principles are largely applicable to Indonesia. However, this study mostly focused on teacher and student perceptions of the extent to which CBT principles work in Indonesia and did not analyze the outcomes of CBT. The authors mention this as a limitation.

[4] Froy (2013) stressed that the availability of 'patient capital', funds invested for the medium or long term (generally for 5 to 10 years), is required for firms to invest fully in their staff and upgrade their production processes. Firms need long-term investment security.

Another structural problem is that skill demand can be weak even in countries where economies grow and industrialization proceeds. In particular, when firms are entrenched in the free market's bias towards short-term profits, it can be perfectly 'rational' for them to pursue a low-skill strategy that does not require large numbers of skilled workers (Payne and Keep 2011; Ashton and Green 1996). Furthermore, if skill demand is stagnant, employers do not find a benefit in proactively engaging in TVET reform (Payne 2018). Latecomer countries that are attempting industrialization by relying on inflows of foreign direct investment (FDI) often struggle with stagnant skill demand since some multinational corporations (MNCs) keep focusing on lower value-added processes to survive the increasingly intensified competition in global supply chains (Mori 2019).

2.3. Policy borrowing and risk of losing policy learning opportunity

The above-mentioned challenges imply that if an employer-led skill formation system is introduced as a 'quick-fix' solution, there are risks that developing countries may simply borrow the system as normative best practice. Generally, it is hard to transfer one country's best practices in education and training policies or programs to another country, regardless of the stage of economic development that either are in. The existing literature suggests that an employer-led skill formation system does not work perfectly even in developed countries. For example, SSCs in the UK face challenges in engaging many non-committed employers, especially in sectors with high concentrations of SMEs (Payne 2008; Keep 2015). In addition, Payne (2002) has argued that British vocational training programs provide limited training in skills which contribute to long-term career development and social equality since they are tied to employer needs and their competency-based training ideology.[5] Policymakers in developing countries are not fully aware of the possible consequences of borrowing an employer-led skill formation system.

Importing international best practices as 'quick-fix' solutions may cause more serious problems in developing countries, since they will lose the

[5] Payne (2002) compared the British English vocational training curricula with Norway's, which he described as being based more on broader purposes such as equality, social justice, democratic participation, and personal development for all.

policy learning opportunities through which they find ways to translate and adapt them to their local contexts (Steiner-Khamsi and Waldow 2012; Phillips and Ochs 2003). The lack of policy-learning processes can be partly attributed to the insufficient self-effort of developing countries; but it may also be attributed to development cooperation if foreign donors force international best practices as a universally applicable model to recipient countries without in-depth analysis of local policy and institutions (Steiner-Khamsi and Waldow 2012). This is so especially when international best practices are offered as a package comprising tightly interconnected elements and governments in developing countries are forced to accept the entire package (Steiner-Khamsi 2014). The import of 'packaged' policies sometimes creates local problems instead of solving them (Steiner-Khamsi and Waldow 2012; Chakroun 2010), since they do not always fit with the capacity and resources of recipient governments, their institutional contexts, or their stage of industrialization (Allais 2012; Mori 2019).

An alternative to policy borrowing is the 'translative adaptation' of external practices through policy learning (see Ohno 2022, 2024), as will be explained below. Nevertheless, for several reasons, there have only been limited opportunities for developing countries to learn how translative adaptation works. First, few case studies have made a comprehensive analyses of the process of translative adaptation, although some preceding studies have analyzed parts of the process, including how policy borrowing causes problems or how completed systems are disseminated as best practices (Steiner-Khamsi 2014, 162).

Second, few studies have analyzed the processes of skill formation in today's developing countries. These require profound knowledge of the dynamic or historical development of local skill formation systems in conjunction with economic, social, and institutional development (e.g. Ashton et al. 1999; Thelen 2004). The existing studies focus on developed countries, newly industrialized economies (NIEs) such as Singapore, or large emerging countries such as China and India rather than small-to medium sized developing countries where sufficient information is often not available. It requires considerable time and resources for developing countries to study those cases systematically by themselves and identify lessons applicable to their situation.

Finally, there is no systematic analysis of what sort of development

cooperation projects would help recipient countries promote translative adaptation. It is not easy to produce manuals or standards to promote translative adaptation since the process differs case by case depending on local contexts. This often leads to the conclusion that it is all about the capacity of counterparts and people, but such a simplistic wrap-up will not lead to the reproduction of successes or the avoidance of failures. Therefore, more concrete analyses of translative adaptation and its relationship with development cooperation are required to draw lessons on how to enhance policy learning opportunities for today's developing countries.

3. Translative Adaptation as a Potential Approach to Facilitate Policy Learning

3.1. The concept and processes of translative adaptation

The concept of 'translative adaptation' was originally presented in the anthropological literature in opposition to the 'clash of civilizations' thesis (Maegawa 1998), and means that an item in one culture or system can change its meaning when transplanted to another culture or system. Applying this concept to international development, Ohno (1998, 12) stressed that developing countries need to adjust the models formed in developed countries according to their domestic economic and institutional contexts. Similar discussions can be found in the literature on education and training. For example, in the context of global education reform, Steiner-Khamsi (2014) stated that it is important to 'recontextualize' and 'internalize' (or 'adapt') international best practices according to local situations. In the field of skill development, the literature on the demand-side approach has emphasized the necessity for policy learning, while criticizing simple policy borrowing (Ashton and Green 1996; Allais 2010). This volume uses the term 'translative adaptation,' aiming to stress the importance of 'translation' and to keep the term consistent with previous usage.

Despite differences in wording, the above adaptation-related concepts share some common elements. First, adaptation requires strong policy ownership. This means that policymakers or other counterparts should not passively follow the advice of foreign donors but proactively select

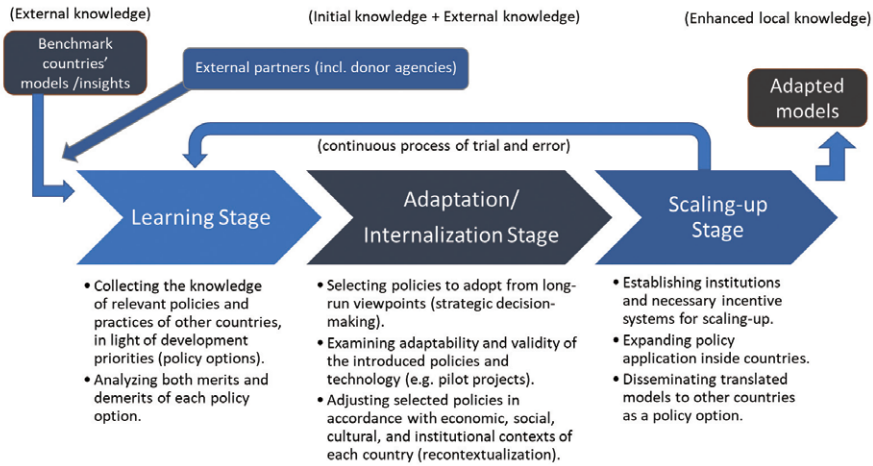
suitable options in the light of their own strategies (Ohno 2014).[6] Second, they should make policy selections based on an in-depth understanding of the broader local contexts related to economic, social, and institutional development. This is the so-called local adaptation of international best practices or norms (Steiner-Khamsi 2014). For this to occur, it is necessary to decompose 'international best practices,' which are often sold as a packaged product. Third, solutions should differ by stage of economic and industrial development (Ishikawa 1998). The final element is dynamic capacity development (Ohno 2013). Should these changes be achieved, policymakers in developing countries would be able to refine these models over time by developing their capacities to do so.

Translative adaptation is also related to 'sustainability,' which is one of the five main evaluation criteria used by the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD). Sustainability in the evaluation of development projects is defined as 'the extent to which the net benefits of the intervention continue, or are likely to continue' (OECD 2019, 12). While the translative adaptation of foreign models of development is presumed to provide long-term benefit for the recipient countries of ODA, this volume focuses more on the processes that transform foreign models rather than on the benefits of intervention.

3.2. Presumed processes

In this volume, we posit that translative adaptation proceeds in three stages: (i) learning; (ii) adaptation or internalization; and (iii) scaling-up or dissemination (see Figure 2.1). This flow was developed with reference to the technology transfer steps of a productivity improvement project summarized by Kikuchi (2013), which consisted of learning, improvement, and extension. It is also similar to the three-step model presented by Steiner-Khamsi (2014), which consists of externalization, recontextualization, and internalization. However, our model attempts to explain the lifecycle of the evolution of international best practice by focusing on the viewpoint of the national (local) counterparts of development cooperation projects. Therefore, the subject of each step is the counterpart's response: how they learn, adapt, and scale up.

[6] See Ohno (2014) for a case study on how the Ethiopian Government has been formulating industrial strategies.



Source: Ohno (2024, 10).

Figure 2.1. Three-stage Process of Local Learning and Translative Adaptation (an example of policy learning by government)

At the ***learning*** stage, the national counterparts in development cooperation projects, such as policymakers and the staff of TVET institutions, obtain opportunities to learn various countries' policies and practices, including their merits and demerits (Ohno 2016; Chakroun 2010). Learners should, however, properly understand that international best practices do not always work even in their country of origin. They have to know that, when they reach later adaptors, international best practices are 'at the same time everybody's and nobody's reforms' (Steiner-Khamsi 2006, 666).

At the ***adaptation*** stage, counterparts make strategic decisions when selecting suitable policies with strong policy ownership, driven by a desire for national pride (Ohno 2014). Then, they have to recontextualize other countries models in accordance with local economic, social, cultural, and institutional contexts and amalgamate them with existing policies and institutions (Steiner-Khamsi 2014; Stone 2001). Typically, they identify appropriate policies or systems based on the results of pilot projects and activities (Kikuchi 2013).

At the ***scaling-up*** stage, adapted policies or systems are disseminated to other regions inside a country or even to other countries. For this purpose, policies or systems should be logically and theoretically refined so that a broad range of people can understand their structure, implementation

processes, effects, shortcomings, and a range of other general and context-specific factors. In other words, 'tacit' knowledge should gradually be externalized as 'explicit' knowledge in this process (Nonaka and Hirose-Nishihara 2018). This scaling-up stage can also be understood as the learning stage for a broader range of people who have received externalized policies or systems.

3.3. The roles of key actors

Key actors in translative adaptation are the 'transfer brokers' or 'agents' who bring policies and systems from other countries to developing countries and their recipients (Stone 2001; Maegawa 2004). Regarding development cooperation projects, the former are usually foreign donors, including the staff of development cooperation agencies and their experts (Steiner-Khamsi and Waldow 2012). Furthermore, foreign donors can play a role in facilitating all three processes—learning, adaptation, and scaling-up, depending on their mandates and strategies.

The latter are the national counterparts of development cooperation projects, such as the policymakers or the senior managers and staff of TVET institutions in the field of skill development. They are the ones who translate and adapt foreign policies or systems, although foreign donors may help their counterparts translate and adapt their policies or systems. However, it is virtually impossible for foreign experts to provide fully adaptable models for counterparts because translative adaptation requires a profound understanding of the local socio-economy and institutions. At most what they can do is to adjust the models based on their own understanding of local contexts. In this sense, frequent clash of opinions between national counterparts and foreign donors is inevitable, or even healthy, in achieving a real consensus between them.

To develop realistic and effective policies, national counterparts have to involve various local stakeholders in the adaptation process. In the case of skill development, these stakeholders consist of employers and intermediary organizations, such as chambers of industry and commerce on the employer side, trade unions on the employee side, and student or youth unions. Whether national counterparts can manage to find a way to adapt foreign models depends on cooperation from these stakeholders.

4. Development Cooperation and Translative Adaptation

Foreign donors can be the catalyst of translative adaptation in developing countries, as 'transfer brokers' or 'agents' who bring external knowledge and technologies through policy advice, development cooperation projects, and so on. This section explores the relationships between development cooperation projects and translative adaptation, in light of two perspectives related to delivery mode. In doing so, we pay special attention to the targeted objectives and the mode of aid delivery, bearing in mind the characteristics of Japanese industrial development cooperation.[7]

4.1. Framework vs. ingredients approach: the targeted objectives of development cooperation

The first perspective is related to the objectives of development cooperation. Yanagihara (1998) makes an interesting comparison between the Japanese and the Western approaches to economic development, which is also relevant to development cooperation. There are two contrasting ways of understanding and analyzing economic development. One focuses on the 'framework' of an economic system and its management; and the other focuses on an economy as the sum total of its 'ingredients' or component parts. The 'framework' represents the rules of the game according to which economic agents make decisions and take action in a given economy, while 'ingredients' refers to tangible organizational units such as firms, official bureaus, and industrial projects, human capital, and infrastructure. As a general tendency, the 'framework' approach is prevalent in Western (especially Anglo-Saxon) donors, while the 'ingredients' approach is more common in Japan and East Asia (Ohno 2013, 146).

It is possible to draw an analogy between the two contrasting approaches and the debates over skill policies. Regarding skill development, examples of 'the framework' are NQF, CBT, SSC, and national apprenticeship schemes because these are the main components of an employer-led skill formation system. On the other hand, the 'ingredients' of skill development comprise TVET institutions, teachers, students, employers, employees, and intermediary organizations. These stakeholders are the actors responsible for materializing policies and standards for upskilling.

[7] See also Ohno (2022) for discussions on the 'framework vs. ingredients approach' and the features of Japanese industrial development cooperation.

In addition, ingredients include the infrastructure of TVET institutions, which cover both hard infrastructure, such as training equipment and facilities, and soft infrastructure such as curricula, teaching materials, teaching methods, and management methods. The management methods contain ways to involve employers and other stakeholders in the various processes of education and training.

Frameworks and ingredients are not mutually exclusive; they are complementary (Ohno 2013). While framework policies and standards do not necessarily lead to the improvement of 'ingredients' for upskilling, such as curricula, teaching materials, and teaching methods (Allais 2012; Chakroun 2010), even good policies and standards do not work if there are no key actors capable of utilizing them. Likewise, the 'ingredients' of national and local policies are required to institutionalize or disseminate local good practices made by capable TVET institutions nationwide. In short, frameworks and ingredients are interdependent.

4.2. Normative vs. hands-on approach: delivery of development cooperation

Another perspective is related to the mode of delivery of development cooperation. This can be categorized in two ways. The first approach, named the normative approach in this volume, focuses on disseminating international best practices formed in developed counties as norms (Steiner-Khamsi 2014). Furthermore, this approach sets international best practices as a benchmark and shows the position of each country by using indices.[8]

An advantage of the normative approach is the provision of explicit knowledge. Many international best practices of skills policies are based on a clear, though sometime simplistic, concept that market-based reform is efficient (Burchill 2001; Williams 2003). In addition, they often look systematic since they are packaged as a coherent product with interconnected elements (Steiner-Khamsi 2014). Therefore, this may make policymakers in developing countries feel that it is easy to learn the structure of these practices and the corresponding policy measures.

[8] See the human capital index of the World Economic Forum's *Global Competitive Reports* (World Economic Forum 2019), and the World Bank's *Systems Approach for Better Education Result* (SABER) and *Human Capital Index* (World Bank 2013b, 2018).

Furthermore, it is less time-consuming to buy a packaged solution than to develop your own system by studying existing practices, selecting applicable components in local contexts, and integrating all components. Finally, a packaged policy can be a tool to promote regional integration, such as common qualification frameworks and subsequent skill standards for the promotion of regional labor mobility.

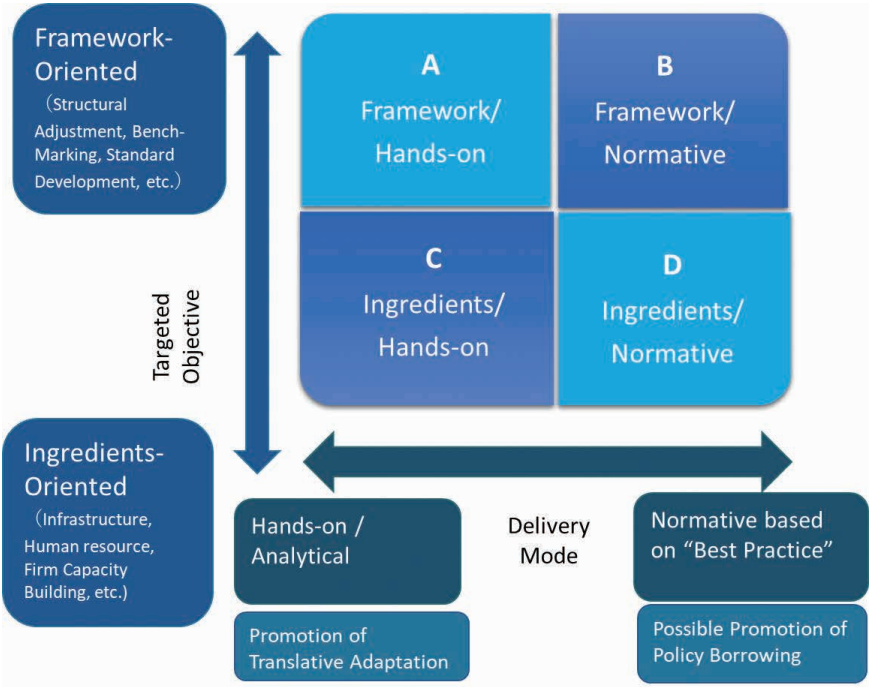
In contrast, the second approach concentrates on finding field-oriented solutions based on the in-depth analysis of local economy, society, and institutions (Ohno 2013; Steiner-Khamsi 2014). Accordingly, solutions will vary depending on local situations. This approach is defined as a 'hands-on' or 'analytical' approach in this volume.

A major merit of this approach is flexibility. In general, counterparts are urged to develop their own policies or systems with in-depth consideration of local characteristics. In other words, this approach focuses on the processes of counterpart capacity development through policy learning (Ohno 2013). Other countries' practices are presented as a reference point, but not as a packaged policy. Furthermore, this approach helps counterparts set up feasible targets depending on their development stage rather than urging them to immediately catch up with benchmarked best practice (Ishikawa 1998). It also concentrates on providing national counterparts with various concrete measures to achieve feasible objectives.

4.3. Development cooperation for translative adaptation

The previous literature suggests that there is an apparent association between types of targeted objectives and development cooperation approaches (Ohno 2013; Yanagihara 1998). While projects targeting the frameworks tend to be implemented using the normative approach (see Box B of Figure 2.2), those targeting ingredients are often carried out in a hands-on way (see Box C of Figure 2.2).

There may be a relational link between targeted objective and development cooperation approaches, but this should not be absolute. For example, a development cooperation project targeting framework, such as skills policies, can be carried out using the hands-on approach, based on an in-depth analysis of local situations. If development cooperation targeting ingredients, such as the capacity development of a TVET institution,



Source: Drafted by the authors.

Figure 2.2. The Targeted Objective and Delivery Mode

encourages counterparts to adopt a curriculum imported from a foreign country without customization, it is taking the normative approach.

The above argument implies that the development cooperation approach type is likely to have stronger association with the probability of translative adaptation than the targeted objectives type. In implementing projects either for framework or ingredients, counterparts are likely to be encouraged to carry out translative adaptation in projects taking the hands-on approach that pay close attention to local characteristics. In contrast, the normative approach contains a higher risk in promoting policy borrowing because it tends to offer a tightly knitted packaged policy as a normative model. Some developing countries are not able to refuse proposals to use the normative method from donors, regarding this as a 'condition' for soft loans or technical assistance (Steiner-Khamsi and Waldow 2012).

Even though a hands-on approach may promote translative adaptation,

it also has some constraints. Technical guidance in this approach largely depends on tacit knowledge. It takes more time for counterparts to understand and internalize tacit knowledge than explicit knowledge. This approach demands a high-level of patience and persistence from counterparts because they need to find answers by themselves in close cooperation with foreign experts. Patience is required for foreign donors as well. If they demand immediate results from projects, they will not be able to adapt this approach successfully. Another prerequisite is strong policy ownership. If national counterparts are not willing to go through an intensive policy learning processes for self-discovery, this approach does not work.

In short, both the normative and hands-on approaches have some merits and demerits. Thus, they are not mutually exclusive but can be complementary in relation to upskilling. In the case that there are some no context-specific issues to be fixed very quickly, a normative approach can even be more effective than a hands-on approach, at least in the short term. The same can be said for the case where there is no choice but to develop common regional frameworks or standards. On the other hand, when it is better to develop systems of practices that work in the local context even by taking some time, a hands-on approach is preferred since it is likely to facilitate translative adaptation.

5. Translative Adaptation in the Changing World of Work

5.1. Great uncertainty

In the future, the world of work is presumed to face an age of radical change brought on by digital technology development. A number of reports and articles have discussed how the development of digital technologies, including automation, artificial intelligence (AI), and the Internet of Things (IoT), will affect labor markets. Most famously, Frey and Osborne (2017) have estimated that 47 per cent of the total US job market has a high risk of being automated in one or two decades. Some researchers have predicted that automation has the potential to reduce employment, in particular at the intermediate occupation level, and cause job polarization (Goos, Manning, and Salomons 2009).

However, it is still not easy to find research that has examined the realities of how the development of digital technologies are reshaping occupations and skill demand within the work place (Brown and Souto-Otero 2020).

Several studies have indicated employer needs for digital skills, but these skills are not considerably different from the ones that are already required (e.g., Burning Glass Technologies 2019; Kispeter 2018).[9] In short, digital technology development may change an employer's skill needs and ways of education and training drastically, but it is still uncertain how and when this change will happen.

This uncertainty was amplified by the recent global pandemic (COVID-19) that forced many employers to temporarily shut down their businesses worldwide. When they resume production, MNCs may have accelerated automation and remote-work, as expected in some articles (The Economist 2020). On the other hand, it is likely that the majority of SMEs are still hesitant to adopt digital technologies and promote remote-work, due to lack of financial and human resources as well as the characteristics of their business that require their workers to come to production sites. It is likely that digital transformation is going on, but nobody really knows how fast it is changing associated skill requirements.

5.2. Different speeds and ways of change

Digital technology development may change the methods of skill acquisition, but this will not happen uniformly across regions and countries. In particular, changes will happen at different speeds and in different ways between developed and developing countries.

In this sense, most extant studies provide only superficial analyses of the impact of digital technology in developing countries. While they have revealed the macro view on the 'future of work' (e.g., World Bank 2019), few of them have provided in-depth and sectoral analyses of how rapidly or incrementally digital technologies are diffusing in developing countries, and how they affect skill formation. There are also several studies that have focused on large developing economies such as China (Bughin et al. 2017).[10] However, few studies have examined the situation

[9] These studies often report on the need for technical skills and knowledge in using existing technologies and software such as AutoCAD for computer-assisted designing and Microsoft Office, or the problem-solving skills whose importance has been stressed on many other occasions.

[10] According to Bughin et al. (2019, 7), China accounted for 23% (or 42 companies) of the world's 185 'unicorns;' private start-ups with a value of at least USD 1 billion in February 2017.

with digital technology development and its impact on skill formation in medium-sized developing countries, whose contexts may be different from the large ones. There have been some attempts to forecast the risks of job losses due to automation (e.g., Chang and Huynh 2016), but again these have not provided a comprehensive overview of the current situation of digital technology development and its impact on skills.

Existing research often concludes that the supply-side, including policy makers and educators, should strengthen cooperation with employers to identify changing skill needs (World Bank 2019). However, few employers may require high skilled workers in late-comer countries, in particular in those smaller countries which have recently joined global value chains and do not have a sufficiently large domestic market to encourage firms to invest in cutting-edge technologies (Mori 2019). Furthermore, employers cannot always identify their precise skill requirements since many of them struggle to identify internal skill needs, in particular their future needs.

This indicates challenges for the governments of emerging countries when they are formulating realistic skill formation strategies in the age of digital technology. Governments in developing countries have been attempting to develop policies to adopt the new era. For example, many governments in Southeast Asia have issued various industrial policies related to digital technology development (World Bank 2019; ILO 2019). However, it remains difficult for the governments of the late comers to develop concrete and feasible policies. For example, the Government of Vietnam has not yet been able to indicate concrete steps for developing a digital economy. This is in part because of the lack of ministerial coordination (World Bank 2019), but there is a more fundamental challenge. The government has not understood how the country is and will be affected by digital technology and to what extent current debates on its development can be applied.

5.3. Translative adaptation in the future

It is thus hard to clarify to what direction the world of work will go and how skill needs will change. To cope with this great uncertainty, skill formation systems need to be flexibly transformed, taking into account local situations as well as global trends. This means that translative adaptation will be even more important in the future since policies simply borrowed from other countries may quickly become obsolete.

However, the processes of translative adaptation may need to be adjusted. The rapidly changing world of work may not allow developing countries to take much time to adapt foreign models to local circumstances. Therefore, it is necessary to find a way to implement translative adaptation processes more quickly. For example, the basic steps of adaptation, which consist of learning, adaptation, and scaling-up, can and should be run simultaneously.

Accordingly, the hands-on approach, which is anticipated to support translative adaptation, should be improved as well.[11] A hybrid of hands-on and normative approaches may be required in the future, as it will be necessary to externalize more parts of tacit knowledge, on which a hands-on approach relies, as explicit knowledge. Furthermore, more good practices for policy learning may come from developing counties than from developed countries in the future. This implies that development cooperation methods will be more like knowledge co-creation partnerships rather than requiring the transfer of technology from developed to developing countries (Ohno 2016; Homma 2024, 2022). This is because many of the issues to be tackled are unprecedented even for developed countries.

6. Conclusions

There is no easy way to achieve upskilling. Borrowing the employer-led skill formation system, developed in liberal market economies, does not always help developing countries to upskill (Wheelahan 2017). Developing countries should identify a skill formation model which fits their social, economic, and institutional contexts. Learning about alternative skills policies is useful only if developing countries internalize these as their own models with a clear and coherent strategy and strong ownership (Phillips and Ochs 2003; Ohno 2014). In short, translative adaptation of foreign models is required, and is even more important in times of great uncertainty due to digital technology development and global pandemics such as COVID-19.

This chapter has examined translative adaptation processes and their

[11] See Homma (2022) for discussion on the new industrial landscape and its implications for Japanese industrial development cooperation. He suggests that Japan's industrial policy support should be further enhanced, with greater attention to co-learning, co-solving, facilitation, and experience accumulation.

association with development cooperation. Translative adaptation is posited to consist of learning, adaptation, and scaling-up processes. Development cooperation projects provided in a hands-on approach based on in-depth analysis of local characteristics are more likely to promote translative adaptation than those implemented by the normative approach that aim to promote international best practice.

However, there are some remaining issues in applying the translative adaptation concept to skill development that should be discussed. First, a three-step process of translative adaptation is presented in this study but it is based on a limited number of case studies in the field of general education reform and firm capacity development (e.g., Kikuchi 2013; Steiner-Khamsi 2006). It is necessary to examine whether the same processes are also applicable for skill development or TVET projects. Furthermore, as digital technology development is said to affect skill requirements, we need to consider how the processes of translative adaptation should be modified in the changing world of work.

Second, it is uncertain what sort of internal and external factors affect each step in the translative adaptation process. Certainly, consensus and trust between national counterparts and foreign donors are essential, but the processes of consensus and trust building are often not deeply analyzed. It is hard to believe that there is no conflict among them even in successful cases, in particular if national counterparts have strong ownership. Thus, it would be useful to understand how the participants usually reach compromises.

Third, although translative adaptation is ideal, what happen if national counterparts lack the capacity and ownership to go through the process? In this case, it can be argued that simply borrowing external models is better than nothing. Thus, it is useful to understand projects that have encountered challenges in encouraging national counterparts to carry out translative adaptation.

Finally, in relation to the above question, the complementarity of normative and hands-on approaches should be explored further in the field of skill development. It is important to understand how they can be connected or in which situations they may be mutually exclusive, based on analyses of actual cases.

The rest of this volume addresses the above issues based on findings from field studies conducted in Southeast Asian countries.

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CHAPTER

3

The Dynamic Development Process of Industry Engagement in TVET: The Case of Hanoi University of Industry (HaUI)

Junichi Mori

1. Introduction

Strengthening industry engagement is a common challenge for the governments and technical and vocational education and training (TVET) institutions in developing countries across Asia and Africa (e.g. Allais 2012; Boahin and Hofman 2014; Mori 2019). The employer-led skill formation system, mostly formed in developed countries, includes measures such as competency-based training (CBT) systems and Sector Skills Councils (SSCs), and is promoted as international best practice by those countries. To increase industry engagement, many developing countries are attempting to adopt these measures (Eddington and Toner 2012; ILO 2008; Lloyd 2008) (see Chapter 2). For instance, to make their curricula more relevant to employer skill needs, some TVET institutions are trying to invite employers onto steering or advisory committees to obtain their input regarding appropriate curricula, following the curriculum development methods commonly utilized in the CBT system (Almeida and Robalino 2012).

However, many developing countries, including Vietnam, are still struggling to develop effective systems for industry engagement in TVET (e.g. Allais 2012; Boahin and Hofman 2014). Some TVET institutions have invited selected firms to curriculum improvement meetings to obtain more information about their skill needs, but these activities often fail to deliver tangible results (e.g. Mori 2019). This may of course mean that they need to improve their ways of approaching firms, but there are more fundamental issues with directly applying the standard measures of the employer-led skill formation system to developing countries. First, the standard measures of the employer-led skill formation system often address the so-called 'framework' of industry engagement in TVET (Ohno 2013; Yanagihara 1998). However, to make this work and deliver

the results required, it is necessary to assemble all the ingredients for the framework, for example, the capacity development of TVET institutions for industry engagement. Second, it is hard for developing countries to reach the level of international best practices, which were usually formed in developed countries, in a single step. They have to find out a way to achieve this goal step by step, implementing solutions according to their particular stage of development (Ishikawa 1998). Finally, international best practices do not necessarily work in all countries (Steiner-Khamsi and Waldow 2012) since skill formation models can differ according to each country's historical and institutional background (Ashton and Green 1996; Bosch and Charest 2008). Although other countries' practices can be a useful reference for policy learning, eventually each country needs to design an industry engagement system that is workable in its own economic, social, and institutional contexts.

In other words, developing countries need to give due attention to the process of 'translative adaptation' of international best practices (Maegawa 1998, 175; Ohno 1998, 12) when learning about the impact of international best practices, rather than borrow them from developed countries (Chakroun 2010). However, there is little research addressing how developing countries can develop their capacities and adapt foreign systems for industry engagement in TVET to their contexts. Therefore, this chapter aims to examine the process of evolving a system for industry engagement in TVET through learning foreign countries' models by studying the case of the Hanoi University of Industry (HaUI) in Vietnam. This examination is based on the analysis of 25 qualitative interviews with three key sets of actors—HaUI staff, employers, and policymakers.

2. Employer Engagement with TVET in Vietnam

2.1. Weak employer engagement and current policies

In Vietnam, employers often remain passive participants and have limited engagement in establishing and implementing workforce development priorities (World Bank 2012). As a result, the Vietnamese government has started paying closer attention to employer skill needs as well as the importance of industry engagement in TVET (NIVT 2015; Communist Party of Vietnam 2013), in accordance with the recommendations of various international organizations (ADB 2009; World Bank 2013; Kis 2017).

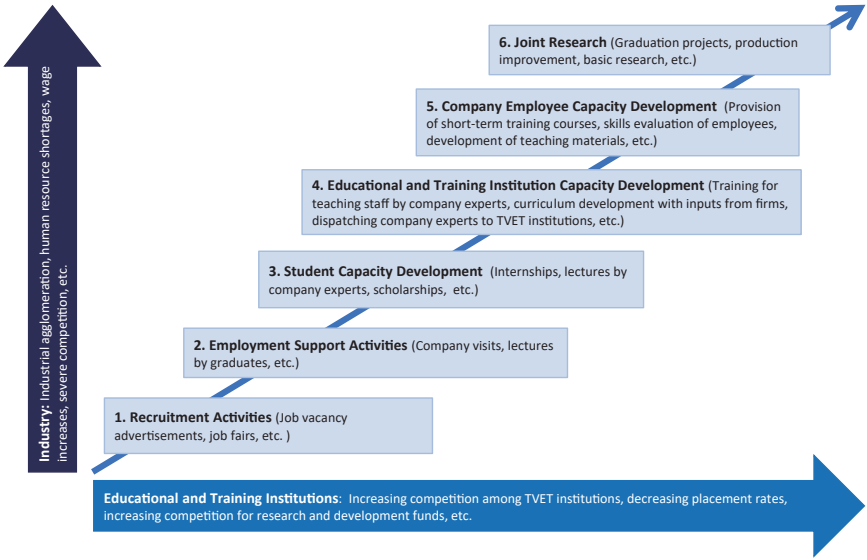
The government is basically adopting the standard policy measures of the employer-led skill formation system or a 'vocational education and training tool kit' (McGrath 2012) to strengthen industry engagement in TVET. For one thing, the government has adopted the CBT model, which aims to ensure that TVET programs deliver the skills required by industry through curriculum development, with inputs from employers (Boahin and Hofman 2014). Accordingly, the government continues to develop the National Qualification Framework (NQF), along with competency-based standards, which are important elements in the realisation of CBT (GIZ 2011; Wahba 2013).[1] Furthermore, the government is promoting training and recruitment contracts between firms and TVET institutions, aiming to realise TVET programs that correspond to employer requirements (Government of Vietnam 2012; ADB 2014; Vietnam National Assembly 2014). According to Mori (2019), in doing so policymakers were inspired by the apprenticeship contracts promoted in some developed countries (OECD 2017), as well as the German Dual Training system (Crouch, Finegold, and Sako 1999).

2.2. Challenges for employer engagement

In accordance with government policy, TVET institutions in Vietnam are trying to strengthen partnerships with firms (Mori 2019). Despite various policies aiming to promote industry engagement, policymakers and educators struggle to involve firms in improving education and training programs. Most cooperation activities between TVET institutions and firms tend to be limited to recruitment and unsystematic employment related activities such as job fairs and internships, in which students are sometimes treated as seasonal workers rather than trainees (World Bank 2013; Mori 2019, 2013).

This means that industry engagement in TVET is still in its initial stages in Vietnam. According to JICA (2014), the partnerships between TVET institutions and firms require the following six steps for development: (i) recruitment activities, such as job vacancy advertisements and job fairs; (ii) employment support activities, such as company visits by students and special lectures by graduates working in firms; (iii) student

[1] According to the World Bank (2015), a final NQF proposal was expected to be completed by the end of 2014. However, the author could not find publicly available evidence that it was completed as of August 2022.



Source: Elaborated by the author based on Mori (2019, 228).

Figure 3.1. Basic Steps of Partnership Development between Educational Establishments and Industry

capacity development, such as internships, lectures by company experts, scholarship, and production of simple equipment based on orders from firms; (iv) TVET institution capacity development, such as training for teaching staff by company experts, curriculum development with input from firms, dispatching company experts to TVET institutions, and donation of equipment to TVET institutions; (v) company employee capacity development, such as short-term training courses organised by TVET institutions; and (vi) joint research (see Figure 3.1). In general, firms proceed to the later steps of partnerships only when they become more confident in the capacity and reliability of TVET institutions, including confidentiality management and the quality of their students. In Vietnam, most TVET institutions are at step one or two.

Some policymakers and educators attribute this situation to firms' reluctance to participate in TVET reform and claim that employers are not taking adequate responsibility for upskilling (Mori 2019). However, employers are reluctant to engage in TVET reform mainly because skill demand is not growing as dynamically as the government and some international organizations presume. For example, Mori (2019) found that many firms in the machine manufacturing industry do not require a large

skilled workforce because they are not necessarily trying to climb up value chains or adopt new technologies. When skill demand is weak, many employers do not find a benefit in proactively engaging with education reform. This makes it difficult for TVET institutions to develop enduring partnerships with such firms.

3. JICA Support to Hanoi University of Industry (HaUI)

3.1. Background for the HaUI-JICA Project

To promote industry engagement in TVET reform, the Vietnamese government has been receiving assistance from multilateral donors, as well as bilateral donors such as Germany and Japan, through Official Development Assistance (ODA) projects (GIZ 2017; ILO 2019). As a part of these development cooperation activities, the Japan International Cooperation Agency (JICA) implemented the *Project for Human Resource Development of Technicians* at the Hanoi University of Industry (HaUI) (hereafter called the HaUI-JICA Project) from January 2010 to January 2013.

The HaUI-JICA Project started five years after the completion of the preceding project, the *Project for Strengthening Training Capabilities of Technical Workers at Hanoi Industrial College* (hereafter called the HIC-JICA Project), that was implemented from 2000 to 2005. The HIC-JICA Project aimed to upgrade the technological knowledge and skills of prospective technicians in the fields of machinery processing, electric control, and sheet-metal processing. This project provided not only technical guidance from Japanese experts but also training equipment (Mori, Nguyen, and Pham 2009). Right after project completion the Hanoi Industrial College (HIC) added university courses to its offerings, resulting in a status upgrade. In December 2005, it was renamed Hanoi University of Industry (HaUI).

Building on the above achievement, the HaUI-JICA Project aimed to assist HaUI in developing a management system that would enable it to continuously upgrade its training programs based on industry skill needs. The project focused on three outputs: (i) courses and curriculum based on industry needs by introducing the training process management system, which was based on the Japanese experience in improving TVET (see below); (ii) pilot skill tests; and (iii) an employment support system (Mori et al. 2013).

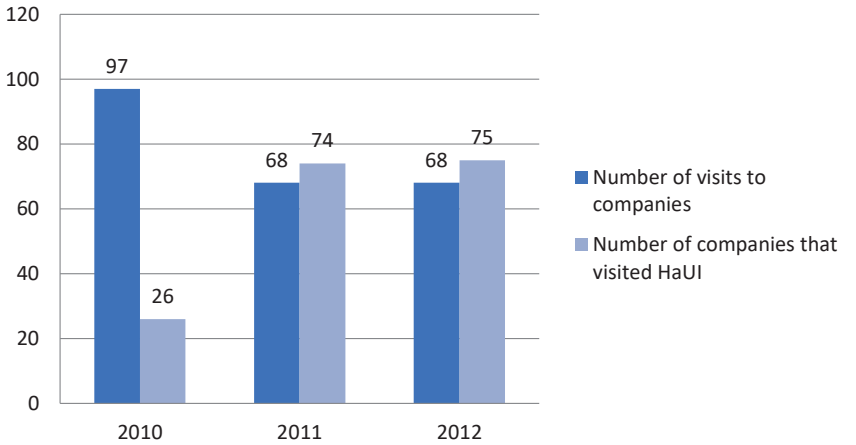
Constant engagement of employers is at the core of the project across the three outputs. To enhance industry engagement in TVET, the HaUI-JICA Project intended to introduce a training process management system, which consists of the PDCA (Plan, Do, Check, Action) cycle of training program development and implementation, based on the Japanese experience of TVET reform in the 2000s (Polytechnic University Capacity Development Research Center 2006). The training process management system consists of seven main steps: (i) determination of industry skills demand; (ii) selection of the training fields; (iii) development of curricula; (iv) preparation for training program delivery; (v) implementation of training programs; (vi) evaluation of training programs; and (vii) formulation and implementation of action plans (see Figure 1.1 of Chapter 1).

With the effort and support provided by the HIC-JICA Project, HaUI had already developed relationships with some firms, which resulted in the offering of internships and production of simple equipment based on manufacturing orders to improve the practical skills of students (Mori et al. 2009). However, those relationships were not organized systematically. Furthermore, HaUI did not have a solid method to identify industry needs for curriculum improvement.

3.2. Enhancement of industry engagement in improvement of education and training

Based on the above situation, the HaUI-JICA Project first encouraged lecturers to visit enterprises, rather than waiting for employers to come to HaUI. In 2010, the project organized an industry needs survey to grasp industry's perception of HaUI's training and the educational program graduates (Mori et al. 2012). Importantly, HaUI lecturers and staff carried out the survey by themselves and did not outsource it to professional research companies. This is because the lecturers and staff can gain more information through face-to-face interviews than by simply reading a survey report, which cannot cover all relevant issues. Including this industry needs survey, HaUI members visited 233 enterprises in total during the project implementation period.

While encouraging HaUI staff and lecturers to go to enterprises, the project also asked enterprises to come to visit HaUI (Mori et al. 2013) to develop mutual understanding between HaUI and firms. Lecturers can



Source: JICA (2014, 19).

Figure 3.2. Visit to and from Companies in 2010-12

learn a lot from on-site advice by enterprise experts. In addition, it was often found that company representatives did not know HaUI's training programs and facilities. During the project implementation period, 175 enterprises visited HaUI. However, as described in Figure 3.2, the number of company visits gradually decreased in the second and third years. This is partially because more companies started visiting HaUI. Thus, HaUI did not need to visit them all the time. This indicates that a two-way relationship between HaUI and industry has gradually developed.

The results of interactions with firms, in particular company visits, helped HaUI go through the full cycle of training process management by developing and implementing short-term courses, based on employer skill needs. For example, HaUI designed and implemented new short-term courses on machinery maintenance in 2012. The project's working group members developed the course outlines and training materials during a series of discussions with the focused company group. The courses attracted 76 participants from 17 enterprises (JICA 2014).

The improvement in cooperation with firms also led to the development of a comprehensive employment support system. It comprises several activities including: (i) internship programs; (ii) company study tours; (iii) lectures by graduates; (iv) job fairs; (v) collection and circulation of job opportunity information; and (vi) career counseling (Inagawa 2013).

To operationalize the employment support system, HaUI established the Employment Support Committee in May 2011, which consists of members from relevant faculties, centers, and departments.

The HaUI-JICA Project also attempted to assist HaUI in developing an institutional mechanism for industry engagement in TVET, based on the tangible results through enhanced industry engagement activities. To maintain project activities and further strengthen industry partnerships, HaUI established an Industry Partnership Board under the Training Department in 2012. HaUI nominated members of this Board from all faculties, centers, and relevant departments, while establishing the office as the secretariat of the Board. The main function of the Board was: (i) to receive inquiries from enterprises and send them to relevant faculties and centers under HaUI; (ii) to follow up on the progress of inquiries and prioritize potential partnerships in cooperation with relevant faculties and centers; and (iii) to lead the improvement of various procedures and schemes related to industry partnerships. In short, the Board was supposed to take over the role of HaUI-JICA Project's office for facilitating partnerships with industry.

After the completion of the HaUI-JICA Project, HaUI established the Center for Enterprise Partnership (CPA) in 2014, which took over the functions of the Industry Partnership Board and the Employment Support Committee.[2] It also planned and organized the national skill assessment, the second output of the project. The CPA also played an important coordination role in the subsequent JICA project, the Project for Strengthening Training of Trainers (ToT) Functions at Hanoi University of Industry (hereafter called the HaUI-JICA Phase III Project), launched in June 2013. This project aimed to transfer HaUI's knowledge and experience acquired through the previous two projects to other TVET institutions, focusing on the fields of machining, electric control, and electronics (Vu et al. 2017). However, the extent to which CPA continued or transformed the industry engagement activities organized in the HaUI-JICA Project has not been deeply analyzed.

[2] HaUI set up the Center for Enterprise Partnership and Vocational Skill Assessment on February 14, 2014 and renamed it as the Center for Enterprise Partnership on March 14, 2017 (Center for Enterprise Partnership 2019).

4. Research Method

This research aims to provide a comprehensive picture of recent development in HaUI's industry engagement system and activities by examining the perceptions of three key actors, namely HaUI staff, employers, and policymakers. To achieve the above objective the research adopted a qualitative research method since that allows the researcher to conduct an in-depth analysis of key actor perceptions. It conducted the case study to obtain a comprehensive picture of the causal process surrounding a particular phenomenon by taking into account information gained from many levels (de Vaus 2001). This research specifically focuses on HaUI's engagement with firms in the machine manufacturing industry, which includes the automobile, motorcycle, and electric and electronic sectors, because this industry has a high potential to increase manufacturing value added and requires more skilled workers (ILO and ADB 2014; UNIDO 2013).

The qualitative data was collected through semi-structured face-to-face interviews. During the field research phase in 2019, the author spoke with 25 interviewees including: (i) 5 HaUI staff members, who are mostly management staff; (ii) 17 management staff members from industry, including 9 firms belonging to the machine manufacturing industry, including automotive, motorcycle, electronics, and other machine parts and equipment suppliers and 4 intermediary organizations, such as business associations, a consulting firm, and an industrial zone management company; and (iii) 3 policymakers from a ministry and an agency related to skill and industrial development (see Table 3.1). Most interviews were conducted in the Red River Delta Region surrounding Hanoi, the capital city, where HaUI, its partner companies, and relevant governmental organizations are located. It also collected and analysed administrative records about industry engagement activities obtained from HaUI, but this data was used as supplementary information to reconfirm or reinforce qualitative data without advanced statistical analysis.

All the qualitative interviews were conducted by the author, who used to work for the HaUI-JICA Project as a JICA expert. The rapport developed with HaUI from this previous work enabled the author to collect in-depth data about their perceptions of development and the challenges of HaUI's industry engagement in TVET, which they may have hesitated to provide

Table 3.1. Interviewee Profiles

No	Pseudonym (Organization)	Number of Interviewees	Pseudonym (Interviewee)
1	HaUI*	1	Board Member A
		1	Senior Expert A
		1	Head of Department A
		1	Coordinator A
		1	Vice Dean A
	HaUI	5	
1	Government Agency A	2	Deputy Director A & B
2	Ministry A	1	Deputy Director C
	Policymaker	3	
1	Japanese Automotive Assembler A	1	Production Director A
2	Japanese Automotive Designing Company A	3	Admin Director A, HR Director A, HR Manager A
3	Japanese Automotive Parts Supplier A	1	Director A
4	Japanese Mold Supplier A	1	Director B
5	Japanese Machinery Parts Supplier A	1	General Manager A
6	Japanese Electronics Assembler A	1	HR Manager B
7	European Electric Parts Supplier A	2	HR Staff A & B
8	Vietnamese Metal Parts Supplier A	2	Director C, Manager A
9	Vietnamese Machining Parts Supplier A	1	Director D
10	Japanese Business Association A	1	Director E
11	Japanese Industrial Zone Management Company A	1	Staff A
12	Japanese Consulting Company A	1	General Manager B
13	Vietnamese Business Association A	1	Director F
	Employer	17	
	Total Number of Interviewees	25	

Note:

*The actual name of organization was shown since it is obvious that this research focuses solely on HaUI.

Source: Elaborated by the author.

to researchers with whom they had never closely worked. Although this relationship could lead to a rich exchange of information, the interviewees might have found it difficult to make critical comments on JICA projects since this could affect the relationship with the author as well as with JICA, which continues to be an important foreign donor for them. Therefore, the author carefully avoided asking questions that would involve evaluating JICA projects and asked them to provide their views on the differences between JICA and other donors' projects.

The interview data was analysed using the 'thematic analysis' method, which is not bound by theory construction and provides flexibility in examining the applicability of existing skill formation theories to currently developing countries (Braun and Clarke 2006; King and Horrocks 2010).

5. Empirical Findings

This section shows how HaUI has developed its industry engagement system and activities and to what extent it has adapted foreign models to the local context. It is based on qualitative interviews conducted in December 2019 with key actors and on administrative records provided by HaUI.

5.1. Progress of HaUI's industry engagement activities

HaUI has maintained some industry engagement activities developed during the HaUI-JICA Project. For example, HaUI succeeded in attracting more than 100 firms to their job fairs in 2019 and about 1,000 students acquired jobs after the event (Steps 1 and 2 of Figure 3.1). This also implies that they have improved their methods for approaching and following up with firms. In addition, HaUI has been attempting to improve the quality of its internship programs (Step 3 of Figure 3.1):

> Currently, we have just taken steps to issue a rule to specify the responsibility of teachers during internship periods. According to that rule, during the internship period at businesses, they must be responsible for supervising students when they practice at companies. That is the biggest change. (Senior Expert A, HaUI)

Furthermore, HaUI has been providing an increasing number of short-term training courses customized for client firms and other organizations (Step 5 of Figure 3.1; see Table 3.2).

Table 3.2. HaUI's Short-Term Training Courses (by Type of Client)

Organization	2012	2013	2014	2015	2016	2017	2018	2019	Total
Japanese Firm	6	9	11	14	16	11	12	5	84
Other FDI Firm	0	0	0	0	0	16	13	1	30
Vietnamese Firm	0	0	0	2	0	22	5	7	36
Educational Establishment	0	0	1	3	2	4	1	0	11
Government Agencies	0	0	0	0	0	2	7	0	9
Total	**6**	**9**	**12**	**19**	**18**	**55**	**38**	**13**	**170**

Source: Mori (2024, 194).

In addition to existing partners like Japanese Automotive Parts Supplier A, HaUI has found new clients, such as non-Japanese foreign-invested enterprises (FIEs):

> Every year, we still have quite a number of participants from foreign enterprises, and some companies set up annual training schedules with HaUI. For example, [Japanese Automotive Parts Supplier A], every February, we have a training course for their new staff on conventional milling and turning. Or [one American firm], we also give them annual training courses. (Head of Department A, HaUI)[3]

HaUI has been able to maintain or expand some of its industry engagement activities, in part because they have institutionalized the coordination mechanism by establishing the CPA. HaUI has been strengthening the CPA's capacity by assigning it 12 full-time staff. This shows the strong commitment of HaUI's top management to partnerships with industry:

> I think the first difference is that HaUI's leaders understand and recognize the importance of partnerships with enterprises. That is why they established the CPA as a focal point. Since they see the importance of partnership activities, they consider this as one of the key strategies for developing this university now and in the future. That is why they have invested a lot in our center in terms of human resources, equipment, etc. (Senior Expert A, HaUI)

Furthermore, HaUI has strengthened the coordination mechanism between the CPA and faculties, which continue to receive the first contact with firms:

> […] there must be rules and policies to specify our functions and duties, as well as the process for us to coordinate with other departments. Once the Rector has issued these rules and policies, we start carrying out our activities accordingly. (Head of Department A, HaUI)

Each faculty's staff still receive the first contact from firms, but some of

[3] The company names are kept anonymous to preserve confidentiality.

them are willing to share the information with the CPA:

> Regarding the industry partnership under HaUI, CPA is the focal point. [...] All companies that approach us for internship or recruitment contact us directly. […] Every year, we send a list of companies who approached us or whom we have contacted to CPA, because they are the focal point. (Vice Dean A, HaUI)

This indicates that some faculties have acknowledged the CPA as an information hub of industry engagement:

> […] we have a unit specializing in summarizing databases to analyze and evaluate activities related to enterprise cooperation. I think this is a very good thing. (Vice Dean A, HaUI)

Institutional capacity development enables HaUI to conduct industry engagement activities in a more systematic way:

> […] as you know, a lot of firms are proactively approaching us through many channels, including CPA, and they directly provide us with advice and help us. So, we can adjust to suit their needs. Previously, the partnership between us was not as systematic. […] In my opinion, these are practical and specific changes. (Senior Expert A, HaUI)

Some employers provided positive comments about partnerships with HaUI, in particular regarding recruitment activities and internships:

> We organize company introduction seminars in some universities, but, considering the number of participating students, from which we may measure their degree of interest in our firm, it seems that HaUI shows the strongest interest in our firm and many students participate in these events. This probably indicates that their management staff are helping us conduct PR for students. (Admin Director A, Japanese Automotive Designing Company A)

The positive evaluation of HaUI by firms is giving it more confidence to

work with firms:

> In the past, we did not have very much information on their needs. So, we were passive in this regard. Now we feel more confident, we proactively provide them with information on our training programs so that they can find the programs that fit their needs...This is the experience that we have learned from the JICA project. Now we approach companies in a more systematic manner. (Senior Expert A, HaUI)

Despite the above successes, HaUI still faces some challenges in cooperating with firms. First, it still has difficulty conducting joint research with firms, which would be the final step in industry engagement (see Figure 3.1). Second, some activities related to the capacity development of HaUI (Step 4 of Figure 3.1) piloted during the HaUI-JICA Project have been conducted less often than in the project implementation period (see Table 3.3). For example, HaUI apparently does not continue to visit as many companies as it did during the HaUI-JICA Project, although many companies appear to keep visiting HaUI instead. In addition, HaUI did not organize in-company training programs for their lecturers. It is presumed that HaUI has difficulty negotiating with firms to accept the lectures for training without support from foreign experts, but this may also be in part because some lecturers are not willing to learn in firms:

> For example, if we have the project (supported by JICA), and lecturers participate in this kind of training program (in-company training programs) under project activities, it's OK for them, because it brings them a chance to learn, to update their skills and knowledge. […] Or sometimes lecturers cannot arrange time to participate in training programs. (Coordinator A, HaUI)

In summary, HaUI's activities and its institutional mechanism for industry engagement have been gradually changing since the completion of the HaUI-JICA Project. This incremental transformation of their industry engagement system indicates the possibility that HaUI has been carrying out translative adaptation of foreign models learned through ODA projects.

5.2. Translative adaptation at HaUI

Table 3.3. Status of Employer Engagement Activities at HaUI

Step*	No	Item	Status
1	1	Recruitment Coordination	Maintained
2	2	Job Fair	Scaling-up
	3	Company Study Tour	Maintained
	4	Employment Situation Suvey	Maintained
3	5	Internship	Maintained
	6	Sending Univ. Students to Japan	New
4	7	In-Company Training for Lecturers	Discontinued
	8	Company Visit	Declining
	9	Curriculum Improvement	No significant results
5	10	Short-Term Training Courses for Company Employees	Scaling-up
	11	National Skills Tests	Scaling-up
6	12	Joint Research	Not much progress

Note:
* Refer to the steps of partnership described in Figure 3.1.
Source: Mori (2024, 193).

This subsection analyzes to what extent and how HaUI has gone through three stages of translative adaptation—learning, adaptation, and scaling-up (see Chapter 2)—in terms of learning the foreign models of industry engagement. Close attention is paid to two issues: the improvement of training programs based on employer skill needs (Step 5 of Figure 3.1) and the development of the coordination mechanism. The research findings regarding these issues indicate that some changes have occurred at HaUI.

5.2.1. Learning stage

HaUI has learned both Western and Japanese industry engagement systems, which are often part of curriculum development and improvement processes, by taking advantage of ODA projects provided by European countries, Japan, and other Asian countries. Through these ODA projects, HaUI has been actively learning the foreign models with a strong sense of ownership, instead of being a passive learner:

> In fact, our school has had access to Japanese, Korean, and German vocational education. All three approaches share the same common core, but each country has some differences. We have to choose the approaches that are the most suitable for us. (Board Member A, HaUI)

In relation to industry engagement for training program improvement,

the first foreign model which HaUI has learned is the Developing a Curriculum (DACUM) method, which originated in Canada and is part of CBT through a German development cooperation project:

> […] that happened a long time ago. […] For Germany, they approached us through a program for vocational training with the Directorate of Vocational Education and Training (DVET).[4] And HaUI sent teachers to study the German TVET system, and one of the notable things was the DACUM, which is also a famous method. (Board Member A, HaUI)

The core of DACUM is to identify employer skill needs through elaborate job and task analysis (GIZ 2011). This is a well-structured but also rigid process in the sense that TVET institutions need to invite company experts to carry out this analysis. Another curriculum development and industry engagement model which HaUI studied was the Japanese training process management system (see Section 3.1). While this model also requires input from employers, the method of obtaining their feedback is not as rigid as with DACUM. If it is difficult to invite employers for job and task analysis, TVET institutions can also obtain information by visiting firms and asking questions from various angles, such as about the structure and content of internal training programs:

> I think the first thing that we have learned from the JICA project is the way to approach companies proactively to figure out their needs so that we can set up the partnership program between our school and the companies. (Senior Expert A, HaUI)

Comparing the foreign models described above, HaUI selected the Japanese training process management system for its TVET programs at their own initiative:

> Actually, as I said earlier, whether it is DACUM, CDIO (Conceive, Design, Implement, Operate) or PDCA, all have the same core. We have learned all three models,

[4] The DVET was renamed from the General Department of Vocational Training (GDVT) in 2017 (Government of Vietnam 2017).

> but regarding vocational education projects, the most successful program in Vietnam up to now is still a JICA project implemented at HaUI. And in our opinion, one of the reasons, though simple, is that the PDCA is the easiest to understand and implement, and thus the most applicable. (Board Member A, HaUI)

It is presumed that HaUI appreciated the Japanese training process management system, which aims to improve curricula based on skills needs information collected in various ways, because it is not easy to gather a sufficient number of company experts for curriculum development meetings in Vietnam, where skill demand lacks dynamism and is weak in some industries:

> Currently, businesses are not really interested in supporting us in the training process, like providing us with comments on our training programs and sending technical experts to our university to share their technologies. Only a few FIEs are interested in doing these things, while small and medium enterprises, especially Vietnamese ones, are really slow in this regard. Our current challenge is how to develop relationships with all types of firms. (Head of Department A, HaUI)

The above statement is supported by employer interviews. Most interviewed employers stated that they had never participated in curriculum improvement meetings. Only Director D of Vietnamese Machining Parts Supplier A mentioned that he had participated in one advisory committee meeting on curriculum development.

Another reason to select the Japanese training process management system is the systematic or structured learning process applied in transferring this model, through which HaUI staff improved their capacities:

> […] for Japanese partners, when developing a project, you figure out a specific roadmap: training partners, giving instructions on the working method with clear explanations. The Japanese way is more systematic, and most importantly, Japanese experts help their partners improve their capacity […] there is always human resource training in Japanese

> projects. (Head of Department A, HaUI)

HaUI staff explained that Japanese experts provide more detailed technical guidance in the hands-on approach (Ohno 2013), while European experts present their models and act as facilitators rather than get involved in the details of an implementation process:

> Here I would like to compare the level of participation of foreign experts between the two projects. For the JICA project, experts guide us more, train us more. As for [a European] project, we work together as independent partners. They did not guide us much in the process of implementation. […] They are more like advisors. They share with us the models and the experience that have been applied in their universities. (Head of Department A, HaUI)

The above quote does not indicate which way is better but describes the differences in delivery mode between two kinds of experts.

HaUI regards the Japanese training process management process model as the most feasible option, but this does not mean they will solely depend on it in the long term. They are also attempting to continue learning Western countries' methods related to education and training program development:

> At present, HaUI develops (university course) curricula according to the CDIO process of the US. […] As for the existing curricula, we also revise them according to the CDIO process. (Head of Department A, HaUI)

In short, HaUI is open to various learning models and keeps searching for a method or model suitable for their capacity or situation, each of which could dynamically change. This indicates their strong sense of ownership in learning foreign models, realizing that the choice is with them.

5.2.2. Adaptation stage

It is likely that HaUI has been customizing and internalizing the training process management system with their own initiatives, taking into account their capacities and other constraints. For one example, they are

modifying the way they collect skill needs information based on their capacity. During the HaUI-JICA Project, HaUI members visited many firms as reported in Section 3, but it appears that this activity has not been continued in a structured way based on the shared organizational strategy. This could be because some teachers are reluctant to visit firms due to time constraints or because there is not enough transport budget allocated, as already indicated during the HaUI-JICA Project (Mori et al. 2013):

> […] we require them to spend more than 50 per cent of their time on working activities in enterprises. This is in addition to the time for teaching, 50 per cent of their total working hours is reserved for work with enterprises. (However,) Not many lecturers follow this, some are very active, but some hesitate to work with enterprises. Maybe they do not have enough skills or knowledge, or they don't know how to contact enterprises, or they are busy with their teaching activities, etc. (Coordinator A, HaUI)

Therefore, instead of industry needs surveys, some HaUI staff are trying to collect skill needs information through partnership activities with firms, such as internships or networking with alumni:

> […] the curriculum is updated and improved annually. And here are the ways we do the revision. Firstly, through the internship programs at firms. We send our lecturers with students and work with company managers. From that kind of communication, we collect ideas from the companies to improve our curriculum. I think that is the most effective approach (better than organizing job and task analysis workshops in which they will invite experts from companies to join). (Senior Expert A, HaUI)

HaUI staff may understand that this way is not the most ideal one, but they consider it to be the most feasible and realistic solution in light of their capacity and the weak motivation of employers to participate in improving training programs.

Another example of HaUI's adaptation of the training process management system can be seen in its internal coordination mechanism between the

CPA and faculties (see Section 5.1). HaUI top management requested each faculty to appoint a focal point for industry partnership who would work closely with the CPA. This internal coordination mechanism is based on the activities developed during the HaUI-JICA Project, including Industry Partnerships and the Employment Support Committee (Mori et al. 2013). However, HaUI has changed the meeting requirement from a regular to an as-needed basis:

> It is true that each faculty has one person responsible for the industry partnership. We do not have any kind of committee. Based on the specific kind of cooperation, our university leaders will assign specific tasks to specific individuals. […] We do not have regular meetings. When CPA organizes their meetings, if representatives of other departments attend, they can give comments or suggestions. (Vice Dean A, HaUI)

This may be because of constraints to secure time for regular meetings with teaching staff, as noted in the above quote from the interview with Coordinator A of HaUI. In Vietnam, teaching staff often receive salaries based on the hours they teach (Mori et al. 2013, 49). This is different from Japanese TVET institutions, where many teachers work on a full-time basis and participation in some committee meetings is considered part of their duties. Therefore, coordination between the CPA and faculties occurs as-needed rather than being required, but the function of the CPA is highly valued by some faculty/staff, as mentioned above. This indicates that the CPA is managing its relationship with faculty well.

Certainly, HaUI is still in the process in improving the institutional mechanism for industry engagement. They constantly face challenges such as insufficient internal support. In particular, it is not easy to intervene curriculum development, which is designated to faculties:

> Sometimes they (faculty members) are busy, sometimes they still do not pay much attention to this activity. In fact, this activity is conducted by each faculty member individually. Each faculty is in charge of their own training curriculum, so they have to develop their own partnership with companies. (Coordinator A, HaUI)

In this sense, HaUI's internal coordination mechanism is still under development. Faculty members will not fully trust the CPA unless it demonstrates its capacity in developing partnerships with firms. Thus, CPA staff keep improving their capacity through continuous self-learning, utilizing not only the materials and knowledge provided by the HaUI-JICA Project but also each partnership case:

> […] we have to learn by ourselves. […] And we also learned from many of the JICA second phase project documents, where we learned how to work with enterprises, how to develop partnership with them. […] For other people (who were not trained in the HaUI-JICA Project), we had to learn from each other. And we learned from each case. For example, when the director assigned us some tasks, we could learn through that case. (Coordinator A, HaUI)

The above two examples indicate that HaUI has been attempting to conduct the translative adaptation of the Japanese training process management system by considering their particular constraints and situations. Their initiatives are supported by pragmatism and persistency, including continuous self-learning, in addition to the keen sense of ownership, capacity, and confidence explained in the previous sub-section. Their pragmatism means that in developing countries, implementing solutions according to the development stage is required, rather than trying to implement unfeasible international best practices (Ishikawa 1998). Their persistence with continuous learning implies that their industry engagement system has not yet reached a complete form and is still in a dynamic process of development.

5.2.3. Dissemination stage

Compared with their performance in learning and adaptation, HaUI has made limited progress in disseminating its industry engagement system to other TVET institutions in Vietnam. Their staff is willing to share their experiences and system with other TVET institutions, but at this moment, dissemination only occurs when requested:

> During the third phase project, sometimes we conducted seminars with some institutions. They also asked about HaUI's partnership activities. In that case, we were willing

> to share with them. For some activities, they can apply exactly the same way as we do, but for some other activities, they have to modify to make them more suitable for the institutions. (Coordinator A, HaUI)

In fact, according to the interview data, HaUI has been disseminating other results of the HaUI-JICA Project, such as the national skill tests on basic machining center operation and 5S, which is based on the Japanese production management system (also see JILPT 2019; Mori 2013).[5] However, its industry engagement practice has not been systematically disseminated as much as these activities.

One possible explanation for limited dissemination is the difference in capacity between the current HaUI and other TVET institutions. The capacity here includes not only the coordination ability for industry engagement but also technical ability and the hard infrastructure to provide raining utilizing adequate training equipment and facilities in accordance with industry skills needs. For example, Coordinator A of HaUI pointed out that industry engagement requires communication ability, which HaUI has developed with technical cooperation from three phases of JICA projects. This is also supported by some employers, who have indicated that they are encouraged to develop relationships with TVET institutions if they provide more frequent feedback about the training programs and results of internships. Furthermore, HaUI has developed physical training infrastructure with substantial assistance from the HIC-JICA Project (Mori et al. 2009). However, many other TVET institutions may not have sufficient capacity to develop partnerships with industries and provide technical training in accordance with their needs. In fact, HaUI did not have it before either and has developed its coordination ability with technical cooperation from three phases of JICA projects. For example, HaUI is helping firms which donate tools and equipment to them to do marketing in their network, replicating the practice piloted during the HaUI-JICA Project (Mori et al. 2013).

> Or the sponsor of training equipment, when we receive their training equipment, we not only provide training

[5] The 5S approach consists of: (i) sorting; (ii) setting in order; (iii) shining; (iv) standardizing; and (v) sustaining (JICA 2018). It is widely recognized by enterprises as a useful means to improve productivity and work environments. See JICA (2014); Mori (2013) for further details of the activities conducted at HaUI.

> equipment for students and lecturers but also conduct PR for the equipment for them. For example, when we receive some guests, who are from other companies, we will conduct PR for equipment provided by Company A. And this makes Company A very happy. The skills are very important. (Coordinator A, HaUI)

Another constraint for dissemination is lack of policy support. HaUI has not received substantial support from the government in disseminating the HaUI model, besides making presentations in ad-hoc workshops or seminars:

> Strengthening partnerships with companies has been on our development agenda for a long time. We have had many kinds of conferences on this issue. Recently, the Ministry of Education and Training (MOET) also sent us some documents on how to implement such kind of activities. It means that they are quite aware of this partnership issue. But we need more action rather than just policy papers, in terms of, for example, financial support, policy guidance, and the social mobilization. (Head of Department A, HaUI)

All interviewed policymakers recognize HaUI's achievement in industry engagement. However, policymakers in charge of skills policies question the applicability of HaUI's industry engagement system because it is a 'university' which has better capacity and resources than other TVET institutions:

> However, one challenge is that HaUI is a 'university,' which does not belong to our system and is supposed to provide academic education. It is a good model, but a question is how to apply... For example, HaUI has an advantage as a university located in Hanoi. They have strong leaders. They provide training related to the industrial sector. How about other TVET institutions? Can they establish CPA? (Deputy Director B, Government Agency A)

It would be true that HaUI has some advantages due to its status as a university which can attract better students in Vietnam, a country where people excessively respect university degrees (Mori 2019; Nguyen and

Truong 2007). Nonetheless, some of their activities, such as improvement of communication with firms or the quality of internship programs should be applicable to other TVET institutions, too. This means that a more fundamental barrier to dissemination of the HaUI model is a lack of recognition by government agencies responsible for TVET. Moreover, due to insufficient inter-ministerial coordination, the dissemination of HaUI's achievements is limited to the network of the ministry which supervises HaUI:

> [Ministry A] organizes workshops to present their models. HaUI is focal point for such kind of conference. However, these activities focus only on universities and colleges under. (Deputy Director C, Ministry A)

As a result of low recognition and lack of inter-ministerial coordination, HaUI may have no choice but to disseminate its model on its own. Therefore, the dissemination of their model is sporadic not systematic.

6. Discussion: Enabling Factors for Translative Adaptation

This section discusses what factors have enabled HaUI to conduct translative adaptation of foreign industry engagement models. It also explores the factors that have inhibited this adaptation.

6.1. Enabling factors for learning and adaptation

The research findings suggest three factors which enable learning and adaptation: (i) confidence; (ii) capacity; and (iii) strong ownership. The confidence developed at the learning stage is likely to have helped HaUI adapt the foreign models to their particular situation. In Vietnam, many firms feel reluctant to communicate with lecturers and staff of TVET institutions, not because of their insufficient technical knowledge but because of their unprofessional behavior, represented by appointment requests made at very short notice and inappropriate outfits worn by lecturers and students (JICA 2014). In the past, HaUI was trapped in a vicious cycle in which a lack of organizational strategies, low motivation and knowledge of firms, and inappropriate behaviors caused negative feedback from employers, making staff more hesitant to approach firms (JICA 2014, 18). However, HaUI staff are now becoming more confident to engage with employers. This means that HaUI has successfully

shifted into a virtuous cycle of partnership development, where positive responses from firms further encourages staff to approach other firms for partnership building.

This confidence is founded on their capacity to coordinate with companies and earn their trust through daily operation (see below) and the provision of technical training programs based on industry skills needs. The research findings indicate various elements which have enabled HaUI to get out of the vicious spiral and move to a virtuous one, such as a strong commitment from top management and clear organizational policies to promote partnerships with firms, the development of coordinating institutions, and improvement of the capacity of HaUI staff to proactively approach firms in an appropriate way. All of these are important, but a question for those who try to replicate HaUI's success is where to start. In particular, in reference to the discussion in Chapter 2, is the first step to develop a 'framework,' such as an institutional setting, or 'ingredients,' such as capacity development of key actors?

In the case of HaUI, the capacity and confidence building came before institutional development. It is likely that small successes of daily operation, starting from the acceptance of meeting appointments and positive feedback on internship or short-term training courses, gave them confidence to deal with more firms (also see Chapter 7). In the process of creating a chain of small successes, HaUI has been developing the capacity required for engagement at the same time. Interviewed HaUI staff stated that they were able to achieve these small successes, taking advantage of the hands-on development cooperation provided by JICA, which basically supports 'learning by doing.' At the same time, they have developed the capacity to not only develop good relationships with firms but also carry out continuous and mutual learning by themselves.

The accumulation of these small successes let top management decide that the CPA would be established as a designated unit for industry engagement with substantial investment in terms of personnel. In other words, HaUI needed to accumulate a few small successful cases before setting up an institutional mechanism. In fact, many TVET institutions designate a unit to encourage partnerships with enterprises, but they struggle to develop partnerships (Mori 2019). This means that setting up an institutional mechanism, or 'framework,' does not work only by itself. They need 'ingredients' to build it, which means people who have become

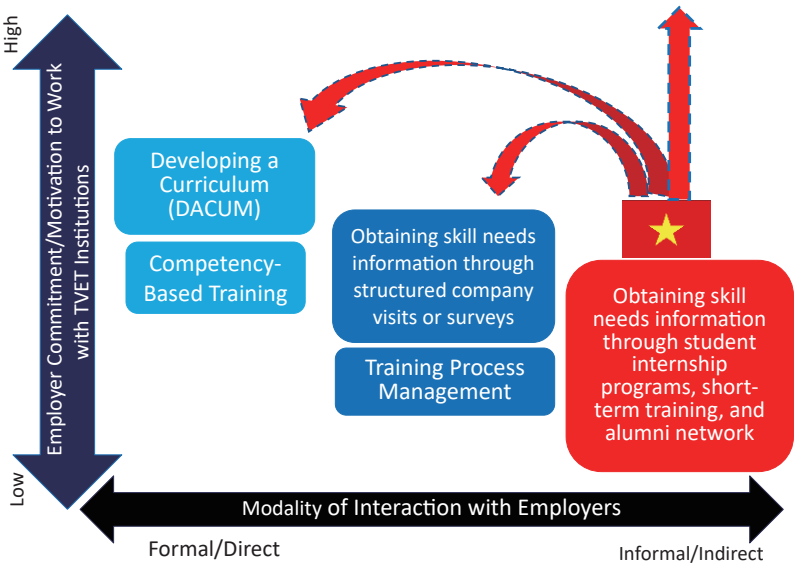
confident in dealing with firms and know how to approach them.

HaUI could not have obtained this confidence and capacity without a strong sense of ownership, which led them to the active learning stage. The research findings showed that HaUI top management considered that they have to choose a suitable model on their own. It seems that they had this sense of ownership at the time they started cooperating with JICA and other donors. Without this ownership, they would not have been able to enter the process of translative adaptation. However, this study was unable to figure out how they obtained this sense.

6.2. Limits to dissemination

HaUI is likely to be successful at the learning and adaptation stages, in terms of industry engagement, but their progress is slowed at the dissemination stage. There are some internal challenges such as teacher motivation, but a more critical issue is lack of policy support from the government. It is likely that the government considers that HaUI's model is a good example but is too unique to apply to other TVET institutions.

Lack of government support may be in part caused by insufficient inter-ministerial coordination since HaUI belongs to the Ministry of Industry and Trade (MOIT), while the Vietnamese TVET system is managed by the DVET under the Ministry of Labour, Invalids, and Social Affairs (MOLISA). However, a pilot skill test on machining center operation, another output of the HaUI-JICA Project, was well recognized by the DVET under MOLISA and scaled up to the national skill test level (see Chapter 5). The difference between these two cases may be attributed to the timing and extent of government agency involvement in learning and adaptation. The industry engagement system has been developed mainly by HaUI with little government involvement, although they were always kept updated through project steering committee meetings. In contrast, government agencies, such as DVET, are more involved in the process of developing the national skill test, in part because DVET's approval is mandatory when seeking to conduct such a test. Therefore, the involvement of the government from the learning stage contributes to wider dissemination. It would be too late to approach the government when the model has already gone through the adaptation stage. Simply, they would consider it to be another organization's model. In this sense, the strong ownership and capacity of HaUI to manage everything by



Source: Mori (2024, 200).

Figure 3.3. Future Direction of HaUI's Industry Engagement System

themselves may have negatively affected the wider dissemination of their achievements through the government agencies responsible for TVET since they did not need significant government involvement in developing partnerships with firms.

6.3. Dynamism of translative adaptation

The research findings indicate that HaUI has selected the Japanese training process management system, after studying other countries' practices and considering their capacity and industrial contexts. However, this is not the end of the translative adaptation process. They have been adapting the training process management system, but they keep studying other countries' practices either on their own or through ODA projects.

It is uncertain how HaUI's employment engagement system will be transformed in the future (see Figure 3.3). It may aim to fully adapt the Japanese training process management system, which encourages TVET institutions to acquire information on industry skills needs not only through formal meetings for curriculum development but also through other forms of interaction, including company visits. Another possibility is

that since HaUI continues to study Western models, they may implement the DACUM method and CBT to the fullest, taking advantage of increasing number of partner firms. Certainly, there is a possibility that they will generate a unique model, which may not exactly follow those developed in Japan or Western countries. In short, translative adaptation is not a static but a dynamic process, as far as counterparts keep developing their absorptive capacity through learning by doing processes and maintaining a sense of strong ownership.

7. Conclusion

This chapter examined the development process of HaUI's industry engagement system and activities, with special attention being paid to how HaUI has learned and adapted foreign models presented by donors. The research presented evidence that after actively learning various foreign models related to industry engagement, HaUI selected the Japanese training process management system for the improvement of TVET programs and has been attempting to localize it, taking into account their current capacities and the extent of support they receive from industry.

HaUI has been mindful of the process of translative adaptation because of its strong ownership, confidence enhanced by capacity building, pragmatism, and persistence including continuous self-learning. The research findings suggest that HaUI has developed confidence and capacity at the learning stage, taking advantage of technical assistance from JICA, and hence they are able to adapt the foreign models to their institutional or industrial contexts. In particular, the accumulation of small successes, which HaUI obtained with hands-on assistance from JICA, provided them with confidence and let them decide to invest in the development of a coordination mechanism, namely the CPA. On the other hand, HaUI seems to face slow progress at the dissemination stage due to lack of government recognition and support, which is attributed to weak involvement of government at the learning and adaptation stage. Given that dissemination is also an opportunity for innovation, this might hinder the further development of HaUI's industry engagement system (see Chapter 7).

Furthermore, this research also indicates that translative adaptation is not a static but a dynamic process. While HaUI has selected the training process management system as a reference in developing their industry

engagement system, it keeps transforming the current model. This may converge to either a Western or Japanese model or lead to a home-grown model that would work better in Vietnam's economic, social, and institutional contexts. Following up with this transformation process will provide useful lessons to other developing countries, in particular middle-size countries which attempt to promote industrialization by utilizing foreign direct investment (FDI) but struggle with lack of dynamism in skill demand.

Finally, this research also suggests that the strong ownership has enabled HaUI to conduct active learning and adaptation. However, it could not determine how HaUI acquired this strong sense of ownership. It may be an endogenous factor such as the national characteristic of the Vietnamese people (Ohno 2014). Another possibility is that, while it is endogenous, it could have been enhanced by certain events in the process of learning. Further analysis of how they acquired or developed this strong sense of ownership will provide valuable information for future development cooperation in a country which may not possess such a strong sense of ownership and is unable to initiate translative adaptation process, particularly in the early stage of development.

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CHAPTER

4

Japanese Cooperation in TVET Teacher Training: The Malaysian CIAST

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1. Introduction

Capacity development of TVET (Technical and Vocational Education and Training) teachers is one of the key issues facing many developing countries when they seek to increase the number of skilled workers in the labor market. The last two decades have seen a growing interest in TVET teacher training. In 1999, the Second International Congress on Technical and Vocational Education in Seoul, South Korea, on the theme of '*Lifelong Learning and Training: A Bridge to the Future*,' showed recognition of the important role of TVET teachers (UNESCO 1999). In this congress it was confirmed that well-trained teachers can be a bridge between economic growth and human development (Majumdar 2011). The policy was followed at the Third International Congress on Technical and Vocational Education and Training in Shanghai, China in 2012. Based on the Shanghai Consensus, the 2015 Recommendation by United Nations Educational, Scientific and Cultural Organization (UNESCO) states that there are four areas of TVET personnel enhancement that need to be tackled. These are: (i) promoting qualified and high-quality TVET staff; (ii) establishing the status of TVET teachers; (iii) building systematic support systems and articulating the expected role of TVET teachers and their learning needs; and (iv) enhancing initial teacher training and professional development (UNESCO 2015). The Recommendation suggests taking a systematic approach in reforming TVET teacher training.

The Japanese government has assisted capacity development of TVET teachers in developing countries for many years. One of the major Japanese projects aimed at TVET teacher training was assisting in the development of the Center of Instructor and Advanced Skills Training (CIAST) in Malaysia. CIAST was the first dedicated organization for the training of trainers (ToT) in Malaysia and it began operating in 1983 with financial

and technical assistance from the Japanese government. It is located in Shah Alam, the state capital of Selangor. After the Japanese project was completed in 1991, CIAST has been playing an important role in TVET development in Malaysia as a base of Japan's cooperation for ToT as it dispatches experts to technical cooperation projects in other countries and serves as a host organization for the Third Country Training Programs.[1]

The CIAST project has been recognized as good practice in the 'technical cooperation projects for human resource development' that the Japanese government put great effort in during the 1980s and the 1990s. For this reason, Japan International Cooperation Agency (JICA) reviewed the project many times (e.g., JICA 1995). However, these reviews mainly focused on project outcomes and summarize the lessons from them and do not clearly indicate how the Japanese experience was introduced on site, absorbed by counterparts and disseminated in Malaysia. In other words, they did not sufficiently analyze how Japanese development cooperation was adapted for the Malaysian context.

In Chapter 2, Mori and Ohno presume that the translative adaptation proceeds in three stages: (i) learning; (ii) adaptation or internalization; and (iii) scaling-up or dissemination. CIAST, which is often referred as good practice in Japanese technical cooperation seems to be at the stage of 'scaling-up or dissemination.' This chapter examines the case of CIAST by focusing on:

- the characteristics of Japanese development cooperation from the viewpoint of 'translative adaptation;'
- the actual process of translative adaptation (learning, adaptation, and scaling-up); and
- the enabling factors of translative adaptation, including scaling-up.

2. Overviews of CIAST

2.1. Japanese technical cooperation for CIAST

Japan's technical cooperation with Malaysia relating to CIAST started in 1982 when Japanese experts were dispatched there based on an agreement

[1] 'The Third Country Training Program' is a method of Japanese technical cooperation. The program is hosted by a country that has received technology transfer from Japan. The purpose of the program is to disseminate the technology to neighbouring countries through training. The program is funded by Japan (JICA 2000).

between the two countries. In January 1981, then Japanese Prime Minister Zenkō Suzuki visited ASEAN countries and proposed the 'Human Resource Development Project' to the respective leaders of each member nation. The project was to establish a local ASEAN training center in each member nation and he pledged 100 million US dollars for this project. The Government of Malaysia agreed to proceed with this project and requested the Japanese government for assistance to establish CIAST to enhance the capacity of vocational training in Malaysia in line with the Fourth Malaysia Plan (FMP) (1981-1985). The plan showed the importance of expansion of vocational training in response to rapid economic growth, structural change in the economy, and population growth. As mentioned in the plan 'an Advanced Skill Centre to provide training for supervisor, foreman and instructors will be built.' The founding of CIAST was in line with the original plan. Based on this request, the Japanese and Malaysian delegations had a series of discussions and these negotiations finally led to agreement on the project's framework.

According to the minutes of discussion between the Japanese preliminary survey team and the Malaysian authorities in April 1982, the basic conceptual framework of CIAST, such as objectives, main functions, the training plan including program capacity and duration, were the main topics of the discussion (JICA 1982a). Although there were many subsequent discussions between the Japanese delegation and the Malaysian authorities, the objective of CIAST follows an original idea from FMP as the minutes mention: 'CIAST will be the national institution for the training and the upgrading of vocational training instructors and supervisors to teach at training institutions and enterprises throughout the country and it will also conduct advanced training for skilled workers and instructors.'

Japanese assistance for CIAST was made up of a combination of grants and technical assistance, as shown in Table 4.1.

Grant aid projects for CIAST thus amounted to 3.8 billion Japanese yen for the construction of facilities and the provision of equipment. The technical cooperation project included the dispatch of Japanese experts, the training of Malaysian personnel in Japan and the provision of a small quantity of equipment (JICA 1982b). The technical cooperation project was implemented from August 1982 to March 1991 and the outline of CIAST it created was: (i) Advanced Technology Training; (ii) Instructor

Table 4.1. Japanese Assistance to CIAST

Project title	Type of assistance	Year	Amount (million JPY)	Contents
Establishment Project of the Centre for Instructor and Advanced Skill Training	Grant Aid	1982	1,740	• The main building (the administrative and classroom block) • Workshop • Dining hall • Student housing • Equipment
		1983	2,060	
The project on the Centre for Instructor and Advanced Skill Training	Technical Assistance	1982 – 91	1,693	• Dispatch of long-term and short-term Experts (61 persons) • Equipment

Source: Drafted by the authors based on JICA (1982c) and JICA (1993).

Training; (iii) (Industry) Supervisor Training; and (iv) upgrade training for Instructors. The purpose of the project was to support the Malaysian counterparts to establish and operate CIAST.

2.2. The current situation of CIAST in Malaysia

Approximately 40 years have passed since the establishment of CIAST in 1983. The TVET system in Malaysia has been changed since the time CIAST was established. For example, TVET administration in Malaysia was restructured in 2006, with the enactment of the National Skills Department Act (NASDA) 652. According to Rasul et al. (2015), the Department of Skills Development (DSD) was established under the Ministry of Human Resources by restructuring the National Vocational Training Council (NVTC). DSD has the following responsibilities:

- to develop and continuously revise training standards, skills training and the certification system;
- to promote skills training; and
- to coordinate strategies and the skills training program.

After the restructuring of the TVET administration, CIAST was shifted from the Manpower Department to the DSD under the Ministry of Human Resources in 2007. This enabled CIAST to participate in formulating the National Occupational Skills Standard (NOSS) in various industries. CIAST instructors often participated with NOSS development committee members in various fields as experts and facilitators.

In 1983 CIAST started, providing three pillars of training courses, namely, 'Training Methodology,' 'Supervisory Skills,' and 'Advanced Skills.' 'Training Methodology' provided pre-service training and in-service training mainly for TVET instructors for six months each and involved technical assistance from JICA. There were nine modules in this course each with a duration of 1-4 weeks. The course 'Supervisory Skills' consisted of seven modules each with a duration of one-to-four weeks. The target of this course was mainly supervisors from the private sector. 'Advanced Skills' Training was conducted by six specialized departments, including the Automotive, Machine Operation and Die Making, Heavy shop, Electrical & Electronic, Instrument & Automatic Control, and Fabrication, with 29 modules in total.

In 2019, the circumstances surrounding CIAST have changed. The TVET system has been developed, and other TVET institutions are providing instructor training. NVTC introduced the NOSS Certification System in 1992; the implementation of the NOSS-based training system sought to strengthen linkages between training and the world of work (Leong, Yunos, and Spöttle 2015). Malaysia has also introduced competency-based training (CBT), which was originally started in Australia, and developed DESCUM (Develop a Standard Curriculum) based on DACUM (Developing a Curriculum), which came from the United States. Responding to the introduction of NOSS for vocational training instructors, CIAST provides a Vocational Training Officer (VTO) certificate course. The origin of this course goes back to the modules of 'Training Methodology' developed by CIAST in 1983. The course was designed based on VTO NOSS, so students who successfully completed the course were awarded Vocational Training Officer Level 3 certification by the DSD (Malaysia Department of Skills Development 2014). According to the CIAST annual report, more than 912 students completed the course in 2019. CIAST also provides DLPV (Diploma Lanjutan Pengajar Vokasional)[2] aiming to produce competent instructors who have the Advanced Skill Diploma (Level 5) in specific fields. Furthermore, some short programs such as

[2] DPLV is a training program aimed at competent instructors who have the Advanced Skill Diploma (Level 5) in specific fields in accordance with Act 652 (National Skills Development Act). https://www.dsd.gov.my/index.php/soalan-lazim/177-soalan-lazim/1683-soalan-lazim-8.

customized courses for the private and public sector, NOSS (DESCUM[3]), Dual System, Facilitator Skill, and CUDBAS (Curriculum Development Based on Vocational Ability Structure),[4] have been conducted. In short, CIAST has been continuously changing its functions along with TVET reform in Malaysia since its establishment.

3. Data Collection Method

This research aims to reveal the actual processes of translative adaptation of CIAST and how Japanese technical cooperation supported CIAST through interaction between Japanese experts and their Malaysian counterparts. This research adopted a qualitative method since this allowed the authors to analyze the actual processes of interaction through key stakeholders' perceptions. Firstly, the authors collected and analyzed project related documents including project evaluation reports, papers, and the books experts have written. Second, based on this analysis, the researchers conducted semi-structured interviews with key stakeholders who were Japanese experts and their Malaysian counterparts.

The authors conducted semi-structured interviews with the Japanese experts in 2019 and their Malaysian counterparts in 2020. The language of interview was English for Malaysian counterparts and Japanese for Japanese experts. Regarding the Japanese experts, the first chief advisor of the project, Mr. Kasahara, has passed away, but his books are helpful in understanding the project. The authors also found two Japanese experts who served in the early stages of the CIAST project (see Table 4.2).

The authors interviewed 12 Malaysian counterparts (see Table 4.3). CIAST was established as a completely new institution in Malaysia. Accordingly, all CIAST instructors, who acted as counterparts of Japanese experts were newly recruited without predecessors. Before the establishment of CIAST,

[3] NOSS is supposed to be developed in the process of DESCUM in Malaysia. According to Amran et al. (2020), the NOSS development process is that first DSD appoints five to twelve 'job experts' personnel as NOSS Development Committee members who are responsible for developing the occupation standard, then the committee members attend development workshops and are involved in completing the Job Analysis and Competency Profile Analysis mostly through brainstorming activities.

[4] CUDBAS is also one of the curriculum development methods. It was originally developed in Japan in 1990, and has been introduced to Malaysia through another Japanese project named 'Improvement of the Vocational Training System to Keep Meeting with the Needs of Industries' (2008-11).

Table 4.2. List of Interviewees (Japanese Experts)

No.	Organization	Field	Dispatched Period		Duration
			from	to	
Japanese expert 1	Employment Promotion Corporation[5]	Supervisory Skills / Die Making	1983	1986	30 Months
Japanese expert 2	Employment Promotion Corporation	Training Methodology / Electronics	1983	1987	42 Months

Table 4.3. List of Interviewees (Malaysian Counterparts)

No.	Degree when joining in CIAST	Position when joining in CIAST	Before CIAST			Direct assistance from Japanese expert	Category
			Private sector	Other TVET institution	Specify		
Malaysian counterpart 1	Bachelor	HOD				Y	(i)
Malaysian counterpart 2	Bachelor	HOD				Y	(i)
Malaysian counterpart 3	Bachelor	HOD				Y	(i)
Malaysian counterpart 4	Bachelor	HOD				Y	(i)
Malaysian counterpart 5	Diploma	Instructor				Y	(ii)
Malaysian counterpart 6	Diploma	Instructor				Y	(ii)
Malaysian counterpart 7	Diploma	Instructor				Y	(ii)
Malaysian counterpart 8	Diploma	Instructor	○	○	ITI	Y	(iii)
Malaysian counterpart 9	Secondary	Instructor		○	ITI	Y	(iii)
Malaysian counterpart 10	Bachelor	Instructor	○			N	(iv)
Malaysian counterpart 11	Diploma	Instructor	○	○	ITI	N	(iv)
Malaysian counterpart 12	Higher Diploma	Instructor	○	○	TTC	N	(iv)

Note: 1. ITI stands for Industrial Training Institute.
2. TTC stands for Technical Training Centres under other Ministries.

[5] The 'Employment Promotion Corporation' was established by the Ministry of Labour to implement vocational training. Most of the technical experts dispatched to CIAST were instructors from this organization.

academic qualification was not required for TVET instructors. According to JICA (1984), the JICA delegation requested the Malaysian side to recruit university graduates and diploma holders as CIAST instructors and add these to experienced instructors. Responding to JICA's request, the Malaysian side recruited new instructors with higher academic degrees. Therefore, the interviewees were classified into three categories: (i) fresh graduates mainly from universities abroad, with a bachelor's degree; (ii) fresh graduates mainly from domestic educational institutions, with diploma degrees; and (iii) experienced instructors from other ITIs (Industrial Training Institutes).[6] Category (i) instructors were appointed as Heads of Departments (HOD), and they also served as the organizational management of CIAST. Most of the category (iii) instructors had working experience in the private sector, which was necessary for instructors at that time, but they usually did not have academic degrees. The authors also interviewed instructors who joined CIAST after project completion (iv).

4. Findings

4.1. The Japanese development cooperation approach for CIAST

The research findings indicate that Japanese development cooperation for CIAST can be characterized as two approaches—'hands-on' assistance and co-working based on the self-help philosophy of the Japanese project team (see Chapter 2).

As mentioned in Section 2.1, the original concept of CIAST was developed by the Government of Malaysia. According to FMP, the Government of Malaysia intended to expand technical and vocational education, thus the FMP included the construction of 12 vocational schools and five ITIs during its period. It also included construction of CIAST as 'an Advanced Skill Centre to provide training for supervisors, foreman and instructors will be built.' However, there was no detailed concept of CIAST in the FMP.

JICA participated in the preparation of the CIAST master plan by dispatching several delegations of Japanese experts. These delegations mainly aimed to discuss and negotiate Japanese assistance to CIAST,

[6] ITIs (Industrial Training Institutes) are vocational training institutes under the Ministry of Human Resources.

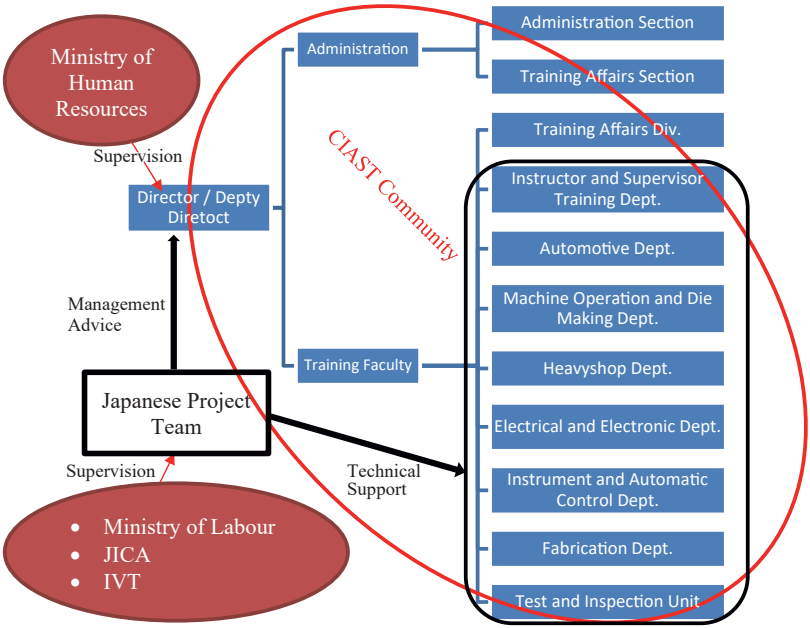
but they also seriously discussed the basic concept of CIAST such as its training courses, the capacity of each program and so on. In August 1982, both sides signed an agreement of technical cooperation, called a Record of Discussion (R/D). Based on this agreement, JICA dispatched the first Japanese expert to the project in July 1983. He was Mr. Shohei Kasahara, and he devoted four years and two months from that time to the CIAST. His previous position was Vice President of Institute of Vocational Training (IVT) and he had long been involved in vocational training in Japan as an administrative official, so we can assume that he had a wide network in the field of vocational training in Japan.

His office in Malaysia was next to the Director General in the Ministry of Human Resources. His first task was to support the Ministry of Human Resources in the establishment of CIAST. He also coordinated the efforts of related Japanese stakeholders, JICA, IVT, and the Ministry of Labour in Japan. In October 1983, a coordinator from JICA and three technical experts arrived in Malaysia to prepare to open CIAST and Mr. Kasahara became the chief advisor and leader of the project team. The chief advisor role was an administrative officer with expertise in vocational training, while the three experts were all TVET instructors who had graduated from IVT, the Japanese public higher educational institution for TVET teachers under the Ministry of Labour.

Project activities were conducted mainly at two levels. First, the chief advisor worked with the director of CIAST, which can be called the management level, while the technical experts supported their counterparts in respective departments, which can be called the technical level (Figure 4.1).

At the management level, the director of CIAST and the chief advisor worked very closely to operate CIAST. Interviewees who worked for the CIAST foundation mentioned the relationship of the director and the chief advisor as:

> [the director] and Mr. Kasahara, had a morning meeting, every day, almost every day, because their room is just side by side and then they discuss. They called it their morning prayer (Malaysian counterpart 1);
>
> I still remember that during all our meetings Mr. Kasahara



Source: Drafted by the authors based on JICA (1982a).

Figure 4.1. Project Implementation Structure in CIAST

> and our Director General, and our director, every head of department had to be present. When is your first training of Computer Numeric Control (CNC), and okay, your Die making, when? Your copy milling, when, CNC, because we have CNC Lathe so, we have to present to Mr. Kasahara. He was very strict (Malaysian counterpart 3).

These interviewees clearly show that Mr. Kasahara and the director worked literally side by side with very close communication. This indicates that the Japanese project not only provided technical advice but operated CIAST together with Malaysian counterparts.

The technical experts also worked together with their counterparts. The Japanese side strongly requested Malaysian side to assign 2-3 counterparts per one Japanese expert on various occasions such as evaluation missions, advisory missions, joint coordination meetings and so on. A former Japanese expert (Japanese expert 2) mentioned that the 'Malaysia side tried to do their best.' Once counterparts were assigned to Japanese experts,

Japanese experts focused on the capacity development of their Malaysian counterparts by on-the-job training (OJT) and off-the job training (Off-JT):

> So, in welding they have 2 Japanese experts, [expert] and [expert]. I learned one by one, face to face for welding and shift metal, because when you are studied at university, you have no skills, welding you have to much more skills (Malaysian counterpart 5);

> For example, like my expert have 1 page from the Japanese magazine, so he will read 1 time, and then he translates, 1 sentence, he will translate, I will write down the translation, and then he will explain. After finished 1 page, I already translated to English, then I show to him, and speak to him about my translation and then we just correct the sentences, the meaning of the sentences. And these are part of the material, teaching material for students [...]. And this type of teaching, according to Islamic way. Islamic way is like that, we have one to one with students, and then he will recite the student will also recite. And then explain the meaning of the versus of then he will take example, and maybe he will show. So, this is teaching method in Islam too, so I think, I did like the expert, practice that type of their culture, your culture, it's the same way of our Islamic culture (Malaysian counterpart 4).

Considering that most of the Japanese experts were graduates of IVT, the model of 'TVET instructor training' for Japanese experts was IVT. However, it should be noted that the IVT model was also a work-in-progress in Japan at that time. According to a Japanese expert (Japanese expert 2), IVT professors were also developing a new model of TVET teacher training based on 'Training with Industry (TWI) training,' which came from the United States:

> At that time, IVT professors have no established theories or systems of vocational training pedagogy yet, so they rely on TWI. They were in the middle of establishing the system to train Japanese vocational training instructors based on TWI, which is what they taught us. Therefore, we relied on what we learned there, and I tried to implement it in

Taiwan (Japanese expert 2).

As he mentioned, Japanese experts brought the IVT model to Taiwan first then they consolidated their way of technology transfer in other developing countries. Japanese experts accumulated knowledge or lessons relating to technical transfer to other countries based on their practical experiences.

According to a book written by the first chief advisor of the project (Kasahara 1991), the concept of 'self-help' was important as the principle of development cooperation, and he tried to form a common understanding between the Malaysian and Japanese sides based on this concept. The following descriptions, 'JOB DESCRIPTION OF THE CIAST EXPERTS (May 25, 1984)' and 'PRINCIPLES OF THE CIAST TRAINING (March 7, 1985)' were proposed by the Japanese expert team and were accepted by Malaysian counterparts (JICA 1987). The descriptions help us to understand what the technical cooperation project aimed at. First, 'JOB DESCRIPTION OF THE CIAST EXPERTS' indicates that the main roles of the Japanese experts were 'assisting' and 'advising' their counterparts on course development, instead of providing material itself. Second, the Japanese experts tried to let their counterparts to do their duties as much as possible. However, since one of the CIAST purposes was to introduce advanced technologies, some subjects were completely new for the counterparts. This is because there were two categories A and B. Those in category A were basic subjects so the role of Japanese experts was just advising. Category B subjects were more difficult for the counterparts, so the Japanese experts provided more hands-on support. This shows that the Japanese expert team varied the degree of support according to the capacity of their counterparts. Therefore, the descriptions imply that the approach of Japanese experts was a co-working style:

JOB DESCRIPTION OF THE CIAST EXPERTS (May 25, 1984)

1. Research for industrial need of vocational training by way of factory observation, industrial committee activities, etc.
2. Assisting development of training software such as curricula, training aids, final test papers on each module unit, etc.

Category A

(1) Setting up the principles on the contents of training software by mutual discussion.
(2) Advising and assisting in making draft by counterparts (CPs).

Category B
(1) Setting up the principles on the contents of training software.
(2) Presenting some samples of training software.
(3) Assisting CPs to make training software.

3. Advising on CPs' conduct of training and final testing.
4. Review on the training software, training conduct and final test of each module unit, and assisting CPs to improve them.
5. Others
(1) Planning CP training in Japanese.
(2) Monitoring for proper use of equipment provided by Japan.

PRINCIPLES OF THE CIAST TRAINING (March 7, 1985)

1. Introduction of New technology and Related Basic Elements
The training programme places emphasis on the field of new technology and the related basic elements toward attainment of it.
2. Unification of Practice and Theory
Skilled workers are encouraged to study the related science and technology, and highly educated staff are conversely encouraged to come closer to the workshop.
3. Qualification of Performance Ability
CIAST Module Certificates will be issued to those who have passed all final tests under each module.
4. Response to Growing Industrial Needs
Training components and methods of conducting training should meet the growing industrial needs of the country.

Furthermore, this attitude of the Japanese experts focusing on sustainability and capacity development of counterparts agrees with what the interviewees (Japanese expert 2, Japanese expert 1) mentioned:

> Regarding how to train our counterparts, I wanted them to develop and expand their training by themselves after we go back to Japan. I did not want equipment provided by JICA to rust (Japanese expert 2);

> I wanted counterparts to become instructors who can teach theory and practical skills, *Jitsugakuittai* (Unification of Practice and Theory), who can use and maintain equipment by themselves, same as the Japanese instructors (Japanese

expert 1).

In addition, it should be noted that the close relationship between the Japanese experts and their Malaysian counterparts supported their technology transfer activities. All interviewees who had worked with Japanese experts mentioned the good relationship they had with them. It is possible that the close relationship promoted technology transfer:

> It was nothing to do after work. I always met Mr. [expert] at the restaurant and I bring him to my house, I invite Mr. [expert] to my house, so those are the things that bring us together. That was part of the project, but it is a good place (Malaysian counterpart 8);

> Mr. [expert] always invite me to go to swimming pool and play tennis at his apartment, near Pantai Dalam. So, not in the training, but outside also very close (Malaysian counterpart 5).

However, this good relationship was developed over time by overcoming some conflict through continuous discussion, as explained in the following section.

4.2. The process of learning and adaptation

CIAST developed its capacity by internalizing the technical advice provided by Japanese experts, according to the research findings and previous studies. However, this does not mean that the process of learning and adaptation was always smooth. It was the result of recurring clashes of opinions and consensus-building. As mentioned in Section 3, there were three types of instructors when CIAST started in 1983: (i) fresh graduates mainly from universities abroad with bachelor's degrees; (ii) fresh graduates mainly from domestic educational institutions with diploma degrees; and (iii) experienced instructors from other ITIs.

As the instructors of the categories (i) and (ii) were very young, CIAST was their first career. Although they had technical knowledge with bachelor/diploma degrees, they had no practical experience. In spite of this, they had to teach experienced instructors or the supervisors of factories. Therefore, they had to learn from Japanese experts seriously:

> Academic in university, whatever you know. Like me, I'm engineer, but I never touch the machine in the university, all theory [...]. We, for example, like me, almost zero, knowledge and skill for that. That means we need too much I mean the guide from the Japanese expert (Malaysian counterpart 1);
>
> After I study at the UTM (University of Technology Malaysia), diploma in mechanical, we have no skills. So, at CIAST, I learned the skills, one by one (Malaysian counterpart 5).

When CIAST was established, TVET teachers were not required to have an academic degree as more stress was put on experience in industry. However, CIAST was a trial of the introduction of academic degrees to TVET teachers. Therefore, it was important to integrate theories and practical skills in that new instructors with academic degrees were educated as engineers, but they did not have practical skills. According to Kasahara (1991), this idea was introduced by the Japanese side with the slogan in Japanese 'Jitsugakuittai,' meaning 'unification of practice and theory.' In the beginning, instructors with bachelor's degrees tended to avoid practical training, however, they gradually changed their mind and came to the workshop in grey-colored shirts. All interviewees emphasized the importance of teaching both practice and theory by instructors:

> I teach both. Theory and practical. And also, at the same time, we develop a written information material, information sheets, work sheets, between expert and our head of department (Malaysian counterpart 5);
>
> Both theory and practical but most of the university more to the theory than practical. But training in Japan, they do both. First, they teach us how to what is the tricky part of mole for example, then from the theory, they can do the design (Malaysian counterpart 6).[7]

In the process of project activities, there were also some gaps between

[7] He intended to tell that the Japanese instructor did not only teach the theory of mole in chemistry but prove it through an experiment.

the Japanese side and the Malaysian side. For example, according to Kasahara (1991), 'Since Japanese experts arrived at CIAST, there was an issue of who would prepare syllabi and teaching materials.' One day, the Director General complained to the chief advisor that some experts did not prepare syllabi. The chief advisor explained to the Director General that Japanese experts would not develop syllabi and he emphasized the importance of the capacity development of Malaysian counterparts (see also 'JOB DESCRIPTION OF THE CIAST EXPERTS' and 'PRINCIPLES OF THE CIAST TRAINING' in Section 4.1). In reality, Japanese experts developed some syllabi such as supervisory skills because young fresh graduates did not have enough knowledge and experience to develop the syllabi by themselves. However, the principle to develop the capacity of counterparts seemed to be shared by the Japanese experts and their Malaysian counterparts alike:

> I prepared most of syllabus and teaching materials. However, if I prepare all materials, counterparts did not learn how to prepare them. I wanted them to develop, improve by themselves even if CIAST introduces new course after we leave. So, I left about 20 per cent of teaching materials then I told my counterparts to develop by themselves, setting the deadlines, advising how to prepare (Japanese expert 2);

> Okay, since that everything starts from zero. We have all the textbooks from the Japanese, from the expert. We have to write our own written material. For the information sheets everything, so, we have to do it with the help of the expert. We have to do it by ourselves, before we go and teach people. People from the industry, so it's a good experience, at least we learned step by step. So, the way they teach us, quite effective (Malaysian counterpart 3).

The point is that no Malaysian counterparts mentioned that 'Japanese experts developed/provided syllabi and teaching materials.' They understood that they had to develop their own capacity to prepare syllabi and teaching materials by themselves.

As mentioned above, CIAST instructors had to learn from Japanese experts to teach instructors from other TVET institution or supervisors from industries. On the other hand, the project gave generous support

to Malaysian counterparts for their capacity development. As a result, Malaysian counterparts thought of themselves as a kind of 'product of the project.' This indicates that they had internalized what they learned from the project:

> I'm a product of CIAST. I'm the product of [expert] (Malaysian counterpart 8);

> That (Japanese style) means they are very punctual, and not playful. So, they bring their Japanese culture to our training center and of course, at first, there are some resistances, especially from our senior instructor. But the young graduate like me and some others, we are quite open (Malaysian counterpart 1).

This enabled the development of community of CIAST staff and dissemination of their knowledge and experience even after they changed careers, as explained below.

4.3. Careers of Malaysian counterparts after the Japanese project

It is likely that the knowledge and skills of CIAST staff who worked with Japanese experts have been disseminated to other organizations as they work in different organizations. Most of the counterparts who worked with Japanese experts have advanced to different careers in the skill training field. Table 4.4 shows the professional careers of the interviewees.

As shown in Table 4.4, most of the counterparts left CIAST and have been appointed as an instructor or a director of other TVET institutions as well as the Ministry of Human Resources ('Gov.' in Table 4.4). The Ministry of Human Resources includes the Manpower Department, DSD, and NVTC. They do not only serve as technical instructors but they also serve as managers of TVET providers under the Ministry of Human Resources and as government officers to carry out the reform of the whole TVET system in Malaysia.

In one example, one of the interviewees (Malaysian counterpart 5) contributed to TVET in Malaysia as an instructor of another TVET institution and as a technical administrative officer of the government

Table 4.4. Interviewees' Career

NO	Degree when joining in CIAST	Position when joining in CIAST	1960s	1970s	1980s	1990s	2000s	2010s	Final Degree
					CIAST Project				
Malaysian counterpart 1	Bachelor	HOD			Study CIAST	Gov	ADTEC CIAST		Bachelor
Malaysian counterpart 2	Bachelor	HOD			Study CIAST	Gov	ADTEC Gov	CIAST	Bachelor
Malaysian counterpart 3	Bachelor	HOD			Study CIAST	ITI Study	ITI		Master
Malaysian counterpart 4	Bachelor	HOD			Study CIAST		ADTEC	Gov	Bachelor
Malaysian counterpart 5	Diploma	Instructor			Study CIAST	TTC Gov		CIAST	Master
Malaysian counterpart 6	Diploma	Instructor			Study CIAST	Study CIAST ITI	ADTEC Gov	TTC	Master
Malaysian counterpart 7	Diploma	Instructor			Study	CIAST			Doctor
Malaysian counterpart 8	Diploma	Instructor	Study	Prv ITI	Gov CIAST	Gov	ITI	Intl. expert	Diploma
Malaysian counterpart 9	Secondary	Instructor	Study	Prv ITI		CIAST			Secondary
Malaysian counterpart 10	Bachelor	Instructor					Study Prv	CIAST	Doing Master
Malaysian counterpart 11	Diploma	Instructor					Study Prv ITI	CIAST	Diploma
Malaysian counterpart 12	Hgiher Diploma	Instructor					Study Prv TTC	CIAST	Higher Diploma

Note: 1. The underlined words show the informant was in a Managerial position (Director, Principal. Deputy Director, and so on);
2. Gov shows that the informant was in the position of Ministry of Human Resources. It includes Manpower Department, Department of Skills Development (DSD), National Vocational Training Counsel (NVTC);
3. ITI stands for Industrial Training Institute;
4. ADTEC stands for Advanced Technology Training Centre;
5. TTC stands for Technical Training Centre under other Ministries;
6. Prv stands for Private company; and
7. The information is based on the interview results and may not precisely present their history.

Source: Drafted by the authors based on the interviews.

after he left CIAST. He joined CIAST in the middle of the 1980s after the official opening of CIAST as a fresh diploma graduate in the Mechanical department. He was trained by Japanese experts and he had opportunities to participate in training in Japan including skills training in a private company. After 4 years working at CIAST, he was transferred to a technical school under the Ministry of Defence which provides training for retired soldiers. He worked as a head of department there for 5 years, then he was called to NVTC. NVTC was an implementation body for national vocational training policies and is currently known as the Department of Skill Development (DSD) under the Ministry of Human Resources. During working at NVTC, he had an opportunity to upgrade his academic degree to bachelor from diploma, then he came back to CIAST as an instructor in the TVET teacher training course in the 2000s. He is still working at CIAST. He also continued to study during working at CIAST and he now

has a master's degree.

As shown in Table 4.4, some interviewees were appointed to managerial positions such as a director or a deputy director of other TVET institutions. A story mentioned by an interviewee (Malaysian counterpart 6) implies that the CIAST project had an impact on other TVET institutions through him. According to him, when he was a deputy director at ITI in the late 1990s, he faced a problem that instructors with higher academic qualifications taught only theory not practical subjects. It was the same problem that the Japanese experts faced at CIAST in the 1980s:

> At that time, I was Deputy Director, so I didn't teach very much [...] low education instructors they teach practical, high education instructor, they are fresh graduated holder, they teach theoretical. [...] So, even though I'm not the instructor at that time, [...] I say, I want you to be here, gather all your students here [...]. I teach the student, not only their students, my students, and I taught them theory today, then after they understood their theory and design everything, then I taught their practical. So, I go down to the workshop, I taught them practical, how to make mold and die. So, what happen to them you know? They are more realize, I mean the higher officer was de-modernize, because why, their students did not respect them anymore, everything they have they don't understand anything, [...] because you know when I was first year of my job at CIAST, I don't know anything, just like them, fresh graduate, don't know anything, just after I finished my training in Japan, I was very confident, just after I complete my training, that's why I came to solve this problem (Malaysian counterpart 6).

In this episode, the interviewee believed that instructors should teach both theory and practical subjects. As mentioned in Section 4.2, this concept was introduced by the Japanese side as '*Jitsugakuittai*.' Thus, he tried to introduce this concept to other TVET institutions from his experience in CIAST although he did not use the word '*Jitsugakuittai*.'

4.4. Enabling factors for continuous professional development

TVET staff require initial preparation, as well as continuing training and professional development, including experience of working in enterprises, and support to enable them to reflect on their practices and adapt to change (UNESCO 2015). The interview data suggest that many CIAST staff have achieved career progress, taking advantage of the flexible path set by the government, and JICA also provided opportunities for capacity development. Regarding the question why they become instructors, most of the interviewees answered because the job had been offered by the government. In most cases the appointment was linked with the scholarships offered to them by the government, which means that their placement as an instructor in CIAST was not always intentional. Nevertheless, most of the interviewees revealed their happy feelings when received the job offer, due to the economic recession at the time and the stable nature of governmental officer employment in the country.

As stated in the Table 4.4, many of the interviewees pursued higher degrees after being employed by CIAST. For example, Malaysian counterpart 7 obtained a diploma degree in electrical engineering, then was employed by CIAST as an instructor. During working in CIAST, he got a chance to pursue a master's degree in the IT field with a scholarship from the government. Then just before retirement from CIAST, he managed to get a PhD degree in vocational education on a part-time basis. Just like him, many of the participants have obtained bachelor, master, or PhD degrees during their assignment in CIAST or other institutions. Another interviewee, Malaysian counterpart 6, obtained his bachelor's degree while he was working in CIAST. For his final project, he made a very simple product using a machine owned by CIAST, which very much impressed lecturers in the university who had never seen the real product before as they had only dealt with theory, according to him. This means that as a university student (Malaysian counterpart 6) he had more practical experience than the lecturers.

As well as degree seeking opportunities, the training of CIAST instructors in Japan appeared to be a great chance for them to upgrade their skills. All of the interviewees who worked with Japanese experts experienced training in Japan. The duration of the training ranged from eight months to one year. Japanese experts designed personal training programs for their counterparts in collaboration with JICA, the Ministry of Labour,

and IVT. Some of the interviewees mentioned they had opportunities to be trained in IVT. For example, interviewee Malaysian counterpart 1 mentioned that he studied in IVT for 6 months and his training was a research type. He did his research under the supervision of a professor in IVT. Another participant mentioned that, before he was dispatched to the Kyoto Skill Development Centre for training, he knew nothing about die and mold making, which he had needed to train his students. But after the training in Japan, his confidence level became very high. He emphasized that, even if he had completed his bachelor's degree, he might not get this level of confidence if he had not attended training in Japan. Furthermore, the training program in Japan did not only help Malaysian counterparts in terms of capacity development, but it was a good opportunity for Malaysian counterparts to understand IVT which Japanese experts considered as a model of CIAST.

Experience as an instructor in CIAST was found to be very useful when they engaged in training courses in other developing countries. Some of the instructors have been involved in the Third Country Training Program (TCTP) operated by JICA, the Malaysian Technical Cooperation Program (MTCP) by the Ministry of Foreign Affairs in Malaysia, and in other opportunities such as international organizations and individual consulting. They utilized their knowledge and skills gained from CIAST during those opportunities.

One of the interviewees mentioned that he had brought the evaluation culture of Japan, where training participants answered questionnaires about the training courses, to Afghanistan when he worked there as a technical advisor under the International Labour Organization (ILO). Another interviewee mentioned that he could learn advanced technology, which he had never learned before, from the Japanese experts at the National Polytechnic Institute of Cambodia, where he had attended TCTP as an instructor for 2 weeks. He described the meaning of TCTP for CIAST and himself as the following:

> What Japan already gave to us, the knowledge and the skills. So, we transferred it back. The knowledge, the skills, to another developing country [...]. I can get new knowledge (from the Cambodian counterparts). I can introduce, for example, exchange knowledge. Maybe I don't know something, they know something. We exchange the

> information, exchange the skills (Malaysian counterpart 12).

Although he did not receive any direct assistance from Japanese experts in CIAST itself as he joined the Center in 2002, it is worth noting that he used the words 'transferred it back.' This means that he clearly admitted that the training in CIAST had originated from Japan.

Experience in CIAST was useful not only when they taught instructors from other countries, but also when they were transferred to other places than CIAST. Malaysian counterpart 8 described his experience as a development officer at the headquarters of the Ministry of Human Resources. He was in charge of finding sites to build new Advanced Technology Training Centres (ADTEC) and ITIs. He clearly mentioned 'We generated the project (CIAST) from zero. It's life experience. You cannot learn this from anywhere.'

As we have seen, it is obvious that they received a tremendous impact from the Japanese experts dispatched by JICA. But we also found that the influence they got from Japan was not restricted to that from JICA experts. Malaysian counterpart 12 mentioned that he had a dream to be an expert in industrial automation just like his supervisor whom he met when he worked for a Japanese company before joining CIAST. Malaysian counterpart 12 mentioned that he was very grateful to the supervisor because he taught Malaysian counterpart 12 a lot. Another interviewee (Malaysian counterpart 8) appreciated a Japanese factory where he worked just after he obtained a certificate from technical school in 1970. The factory allowed him and his colleagues to pursue a diploma at night after working. He added a story from when he had first been offered a job in Afghanistan under JICA after retirement from CIAST. He introduced his wife's opinion against his assignment in Afghanistan:

> You worked for Japanese company before. You let Japanese come to our house. They were very good people. I don't think they (Japanese) will fail you, so please go. The head will tell you dangerous, but the heart say, let's go (Malaysian counterpart 8).

In summary, it is likely that CIAST staff achieved career progression from the combination of opportunities obtained through the government

and the Japanese development cooperation projects as well as their own efforts to develop their abilities.

5. Discussion

5.1. Japanese approach to assist CIAST and translative adaptation

The results from the interviews and documents clearly show that the Japanese cooperation approach for CIAST was 'ingredients-oriented' (see Yanagihara 1998 and Chapter 2) and hands-on from the beginning until the end of the project.

The establishment of CIAST was originally planned by the Government of Malaysia, and the Japanese cooperation approach was to support implementation of their plan. As mentioned in Section 2.1, although the project was a Japanese political commitment to ASEAN countries, the Government of Malaysia took this opportunity to request Japan for support to establish a new training center for TVET instructors and supervisors of industry, which they had planned in the FMP. Responding to this request, the Government of Japan supported the realization of the Malaysian initiative by dispatching delegations of technical experts. JICA dispatched an expert (Mr. Kasahara) to prepare for CIAST establishment and he worked with the Director General of the Ministry of Human Resources and the CIAST director directly. According to the Japanese advisor's diary (Kasahara 1991), the DG, the Director, and Mr. Kasahara met frequently, and they argued about various issues such as counterpart training in Japan, the training contents of CIAST, and all administrative issues. Taking these facts into account, the Japanese approach was characterized by a participatory and co-working style in the process of CIAST establishment, which Ohno (2016) described as 'co-creative partnerships.' Therefore, this study concludes that Japanese cooperation was an 'ingredient oriented' and hands-on approach at the stage of CIAST preparation.

At the implementation stage of the project, Japanese cooperation continued to be 'ingredient oriented' and hands-on. In 1982, adding to the chief advisor, two technical experts and one coordinator arrived at CIAST from Japan. Then the project started full-scale. Japanese experts brought textbooks written in Japanese. They took much of their time in the office to translate textbooks for Malaysian counterparts and preparing

teaching materials for new courses. It is possible to say that this was a 'normative' approach. However, Japanese experts stuck to the principle that technical cooperation should promote 'self-help' in counterparts and as a result, this concept seemed to be shared with the Malaysian side. Japanese experts did not do all of the work on behalf of their counterparts in the educational area. Accordingly, Malaysian counterparts never said that 'Japanese experts prepared curricula' but always said 'they helped us' even though the first version of the curricula was mainly drafted by Japanese experts. One interpretation of this approach is that there can be a 'normative' aspect in international cooperation, but the research findings show that both Japanese experts and their Malaysian counterparts did not attempt to directly copy the Japanese model to Malaysia in this case.

It should be mentioned that the Japanese side of the project focused on the capacity development of Malaysian counterpart personnel. One of the main concerns of the Japanese side during the project was always the appointment of counterpart personnel. Japanese delegations and the chief advisor strongly requested the Malaysia side to assign 2-3 counterparts per one Japanese expert and the Malaysia side responded to these requests. Once counterparts were assigned, the project focused on the capacity development of the counterparts although they were newly assigned and had no working experience. Japanese experts supported their work in OJT, and also trained them in Off-JT. The Japanese experts kept their counterparts busy by giving assignments.

In addition, many Malaysian counterparts were fresh graduates when they were appointed to CIAST. This meant they had neither practical skills nor working experience in industry. In general, less experienced counterparts could be inhibitors of an international cooperation project. However, this study demonstrates that less experienced counterparts possibly promoted 'translative adaptation' in this case. Malaysian counterparts had no option other than to learn from Japanese experts to take up their responsibilities as instructors of CIAST. This could affect the relationship between Japanese experts focusing on capacity development and those CIAST counterparts who needed technical expertise. The results imply that they could internalize what they have learned from the project, in that they had no other practical experience before appointed to CIAST. In the viewpoint of 'translative adaptation,' this internalization process by Malaysian counterparts can be interpreted as 'learning' and 'adaptation.'

5.2. The importance of self-help philosophy for adaptation and scaling-up

The results show self-help was one of the most important concepts for both the Japanese side and the Malaysian side in terms of the development of CIAST. Mr. Kasahara, the first chief advisor of the project emphasized self-help philosophy as the most important principle of the project and this was shared with project experts (Kasahara 1991). This research shows that this philosophy led the Japanese cooperation approach to be 'ingredient oriented' and hands-on.

At the same time, the Malaysia side also seemed to make efforts for self-help. The idea of CIAST was not brought from outside of Malaysia but was planned based on their own analysis of the challenges. It is true that CIAST received a considerable amount of grant and technical assistance from the Japanese government as stated in the first section. However, upon the development of TVET teacher training in Malaysia, the Malaysian government has been bearing a substantial amount of money by itself to upgrade the skills of the trainers.

These instructors did not only get a chance to pursue higher degrees supported by the government, but they also utilized the opportunity of TCTP or development of channels in other developing countries. While Malaysian instructors make full use of the Japanese experts stationed in other developing countries, they also exchange skills and knowledge with their counterparts there.

5.3. Mobility of CIAST counterparts for scaling-up

In general, the lack of continuity is an extremely difficult environment for capacity development (Hilderbrand 2002). Thus, a rapid turnover in personnel has been regarded as one of the risks in technical cooperation. However, this study has shown that the mobility of CIAST counterparts promoted the 'scaling-up' of 'translative adaptation' to government agencies and other skills training institutions.

After project completion, the Malaysian counterparts were transferred to other TVET institutions or the TVET administration itself, and they applied their knowledge and experience in these contexts throughout their professional career. On the other hand, it was considered that CIAST

might lose its attractiveness since many counterparts had left CIAST. In fact, one of the interviewees, who led CIAST reform in the late 2000's, reflected on CIAST at that time of its establishment;

> CAIST was almost 25 years old and when I went through what they offered to the public, it was something that I had left before and it's never been changed. [...] I was not proud of CIAST at that time when showing others (Malaysian counterpart 1).

This implies that CIAST did not have enough capacity to change itself to meet the changing needs of human resources in Malaysia although the Japanese project was aiming at this. However, even though former counterparts left CIAST, they keep staying in the same community. For example, according to the interviewee (Malaysian counterpart 1), the DG of DSD in the Ministry of Human Resources, who used to be the first CIAST director, requested him to return to CIAST to take part in its reform.

Although those who were trained by the Japanese project did not remain in CIAST, they were appointed to important positions under the Ministry of Human Resources, and maintained strong ties with CIAST and their former colleagues in CIAST. These findings suggest the possibility that the CIAST community acted as a community of practice (Lave and Wenger 1991) and that the process of expansion of this community through the mobility of CIAST counterparts has contributed to the dissemination of and 'scaling-up' of Japanese assistance.

6. Conclusions

This chapter has discussed the process of 'translative adaptation' mainly by focusing on the perspectives and activities of Japanese experts and Malaysian counterparts in TVET teacher training.

The research findings indicate that Japanese assistance to CIAST was made up of 'ingredients-based,' hands-on, and 'co-working' approaches. These approaches are considered to be able to make lots of achievements even after project completion. It should be also noted that the strong ownership of Malaysia over CIAST was another important factor of the success of CIAST. Japanese experts tried to take a hands-on approach to the development of the capacity of their counterparts at both the project

formulation stage and the implementation stage. This approach was based on a philosophy of 'self-help' where the Japanese experts believed that their Malaysian counterparts were responsible for developing teaching materials under the chief advisor's firm philosophy that technical cooperation should be an assistance for 'self-help.' As a result, the idea was accepted by Malaysian counterparts. This enabled CIAST to own these materials and revise them by themselves. Therefore, it is suggested that the hands-on approach can assist in the continuous development of counterparts on condition that the philosophy of 'self-help' is shared with recipient counterparts.

On the other hand, Japanese assistance to TVET teacher development was limited to the institution level. As UNESCO (2015) suggested, building a systematic support system for TVET teachers such as insisting on the qualification of TVET teachers is necessary in TVET teacher reform. As far as the data collected in this research is concerned, Japan focused on the organizational capacity development of CIAST and did not intervene in TVET policy. This agrees with what Mori and Ohno noted in Chapter 2, that 'East Asian donors, including Japan, are apt to provide development cooperation focusing on ingredients by taking a hands-on approach.' In the CIAST case, the Government of Malaysia could utilize CIAST by reforming it in accordance with TVET teacher reform. However, this implies that TVET institutions possibly fail to adapt themselves to policy changes. This can be a barrier for the 'scaling-up' of 'translative adaptation.'

In this chapter, we examined the actual process of 'translative adaptation.' In the learning and adaptation stage, the Japanese project focused on the capacity development of Malaysian counterparts by a hands-on approach based on the 'self-help' philosophy of the Japanese project. The Malaysian counterparts also accepted this approach, they did not regard Japanese experts just as resources, they developed personal relationships with trust. As a result, the project succeeded in developing counterparts who not only acquired knowledge and skills, but also understood the underlying concepts of Japanese vocational training such as '*Jitsugakuittai*,' work attitudes, and so on. The Malaysian government made effective use of these counterparts by assigning them to different positions in the TVET sector and the counterparts performed what they had learnt from the project in their new positions. Therefore, the mobility of the counterparts contributed to scaling-up after the project termination.

As discussed in this chapter, the process of 'translative adaptation' in CIAST was affected by various factors on both the Japanese and Malaysian sides. However, this study indicates that the hands-on approach promoted 'translative adaptation.' This chapter could not discuss details about TVET teacher training reform in Malaysia though, as the country has learnt and adapted various models from outside. Thus, it can be presumed that the hands-on approach is not the only enabling factor of 'translative adaptation.'

One of the limitations of this study is that we only focused on Japanese cooperation. As Malaysia adapted various models from outside, 'translative adaptation' is not the translation and adaptation process of a single model, but a process in which multiple models are translated and adapted in relation to each other. Therefore, a further study of how translative adaptation happens with multiple models should be conducted.

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CHAPTER

5

Translative Adaptation for Skills Evaluation Systems in Vietnam: Development Cooperation in Establishing the National Skill Test

Fumio Inagawa and Junichi Mori

1. Introduction

Vietnam has achieved rapid economic growth since 2008 with an annual GDP growth rate of around 6 per cent. The Vietnamese government has implemented various policy measures which have successfully attracted increasing foreign direct investment (FDI). As a result, increasing the supply of a sufficient number of skilled workers has become a critical issue to sustain economic growth and achieve industrialization. However, the National Occupational Skill Standards (NOSS), which are required to evaluate and certify workers' ability to perform their duties, and vocational skills evaluation and qualification systems based on this are not sufficiently developed. In order to improve this situation, the Vietnamese government has established a national skills evaluation system, taking advantage of development cooperation from various foreign countries, and has begun national skills testing.

One characteristic of Vietnam's current skills evaluation system is that, while the government has adopted the competency-based NOSS developed in Europe, it has also adapted Japanese-style skill tests for skills evaluation. As a result, there is criticism from both inside and outside Vietnam that the government has introduced advanced country systems without a clear policy (Mori 2019). There has not been sufficient analysis of why the government decided to make such a choice and how the introduced system, which is different from European and Japanese systems, will develop in the future.

Therefore, based on the authors' work experience in Vietnam and the results of field study, this chapter examines Vietnam's initiatives to develop and implement a national skills testing system and Japan's development cooperation from two points of view: (i) how the Vietnamese government

Table 5.1. List of Available NOSS (as of August 2020)

Ministries in charge	Related areas	Number of job types
Ministry of Industry and Trade	Manufacturing, power generation and electricity, processing, industrial technology, commerce, IT, etc.	81
Ministry of Transport	Transport, road and bridge construction, etc.	36
Ministry of Agriculture and Rural Development	Agriculture, fisheries, livestock, forestry, etc.	32
Ministry of Construction	Construction and construction-related areas	27
Ministry of Culture, Sports and Tourism	Travel, hotels, restaurants, culture, sports, etc.	8
Ministry of Health	Pharmaceutical technology and medical equipment	5
Ministry of Information and Communications	Maintenance of stations of devices to transmit and receive radio waves and installation of information terminals	2
	Total	191

Source: Drafted by the authors.

and related organizations established the national skills evaluation system through development cooperation from various foreign countries, including Japan; and (ii) how they adapted foreign systems to the situation in Vietnam.

2. Introduction of a Competency-Based Skills Evaluation System and Its Challenges

2.1. The Development process of NOSS and its status

The reform of the national skills evaluation system in Vietnam started when the Vietnamese government conducted research on the competency-based training (CBT) model introduced by the International Labour Organization (ILO).[1] Later, in 2008, with the cooperation of the German international cooperation agency, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ),[2] which used to be called GTZ, the government started to develop NOSS, which is the core of CBT. As of December 2019, it had developed NOSS for 191 occupations (see Table 5.1). NOSS are

[1] This is based on information obtained during an on-site survey in 2019.

[2] In January 2011, three German organizations involved in the provision of technical cooperation (GTZ, a technical cooperation authority; DED, an agency that dispatched human resources such as volunteers; and InWEnt, a human resource development and training organization) were integrated to form the *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ). GIZ has experience of implementing projects in over 130 countries worldwide.

an important tool for skills development that can be utilized to develop vocational training programs and evaluating and certifying a workers' ability to perform their job. NOSS can be the foundation of vocational training curricula, skills evaluation frameworks, and skills evaluation, including both theoretical questions and practical assignments.

The basic process of NOSS development in Vietnam is as follows. First, the Ministry for Labour, Invalids and Social Affairs (MOLISA) draws up an annual development plan, taking into consideration the needs of industry, the requests of related government agencies, and so forth. Second, based on this development plan, relevant government agencies develop NOSS for assigned occupations requested by MOLISA. This request is made to universities, state-owned enterprises (SOEs), and other organizations under their supervision to develop NOSS. Third, these designated organizations start NOSS development by setting up a development committee. Fourth, responsible government agencies submit the NOSS developed to the Directorate of Vocational Education and Training (DVET), formerly called the General Department of Vocational Training (GDVT).[3] Finally, MOLISA examines the structure and content of the NOSS and if they are acceptable, publishes them.

2.2. Structure of NOSS

A NOSS consists of a unit structure table by task and a unit sheet which describes the content of work to be performed in each task, evaluation standards, and so forth. Table 5.2 indicates the structure of a NOSS for a metal machining job using computer numerical controlled (CNC) machine tools. The NOSS for a CNC metal machining job comprises a total of 71 work units in 11 work groups (from A to L). Specifically, it consists of two major work groups—CNC turning and CNC milling (including the CNC machining center)—and nine related peripheral work groups (including work preparation, design of parts to be processed, setting of processing procedures, development of numeric control (NC) processing programs, product quality control, equipment maintenance, and occupational safety and health).

[3] The Vocational Education Act of 2014 (74/2014/QH13) stipulated that vocational education, supervised by the Vietnamese Ministry of Education and Training (MOET), and vocational training, supervised by GDVT, should be combined for integrated implementation and operation. GDVT was restructured in accordance with the provisions of this Act, and in October 2017, it was reorganized into DVET.

Table 5.2. Structure of NOSS for CNC Metal Machining

Unit No.	Work number	Work name	Work levels				
			1	2	3	4	5
A		Work preparation					
1	A1	Grasping customer needs					○
2	A2	Production planning				○	
3	A3	Preparation for a workpiece			○		
4	A4	Preparation for machinery, tools, and equipment			○		
5	A5	Trouble-shooting during work					○
B		Design of parts to be processed					
6	B1	Planning for design of parts to be processing				○	
7	B2	Preparation for CAD/CAM systems				○	
8	B3	Design of detailed drawings for processing				○	
9	B4	Trouble-shooting during the design of parts to be processed					○
C		Setting processing processes					
10	C1	Reading of design drawings and analysis of specifications for parts			○		
11	C2	Selection of a method to create aworkpiece				○	
12	C3	Selection of machinery and equipment				○	
13	C4	Selection of turning tools				○	
14	C5	Selection of measuring instruments				○	
15	C6	Preparation of detailed processing process charts					○
16	C7	Trouble-shooting during the preparation of processes					○
D		Design of NC processing programs					
17	D1	Planning for the design of NC processing programs		○			
18	D2	NC processing programming through direct keyboard entry on the MDI panel of the CNC machine		○			
19	D3	NC processing programming through CAD/CAM software		○			
20	D4	Trouble-shooting during NC processing programming					○
E		CNC turning					
21	E1	Preparation for a CNC lathe and equipment		○			
22	E2	Preparation for materials, workpiece and fixture		○			
23	E3	Preparation of measuring instrumentsprocessing		○			
24	E4	Preparation for turning tools and other standard cutting tools		○			
25	E5	Checking of NC processing programs through CNC control software				○	
26	E6	Fixing of cutting tools based on the NC processing programs		○			
27	E7	Measurement of the tool length		○			
28	E8	Fixing of fixtures and jigs	○				
29	E9	Fixing of the workpiece		○			
30	E10	Setting of the origin of workpiece coordinate		○			
31	E11	Trial cutting of parts to be processed		○			
32	E12	Automatic processing of parts using a CNC lathe	○				
33	E13	Maintenance of machinery, tools, and measuring instruments			○		
34	E14	Trouble-shooting during processing				○	

Unit No.	Work number	Work name	Work levels				
			1	2	3	4	5
F		CNC milling (including CNC machining center work)					
35	F1	Preparation for a CNC milling machine and equipment		○			
36	F2	Preparation for materials, workpiece and fixture		○			
37	F3	Preparation of measuring instruments		○			
38	F4	Preparations for a milling cutter and other standard cutting tools		○			
39	F5	Checking of NC processing programs through CNC control software				○	
40	F6	Fixing of cutting tools based on the NC processing programs		○			
41	F7	Measurement of the tool length		○			
42	F8	Fixing of fixtures and jigs	○				
43	F9	Fixing of the workpiece		○			
44	F10	Setting of the origin of workpiece coordinate		○			
45	F11	Trial cutting of parts to be processed		○			
46	F12	Automatic processing of parts using a CNC milling machine	○				
47	F13	Maintenance of machinery, tools, and measuring instruments		○			
48	F14	Trouble-shooting during processing			○		
G		Product quality contro					
49	G1	Quality control planning for parts to be processed				○	
50	G2	Quality control during processing				○	
51	G3	Quality control for products before they are brought into the warehouse				○	
52	G4	Product quality control before delivery				○	
H		Maintenance of equipment (machinery, jigs and fixtures, cutting tools and measuring instruments)					
53	H1	Planning for the maintenance of equipment (machinery, jigs and fixtures, cutting tools and measuring instruments)			○		
54	H2	Maintenance of machinery			○		
55	H3	Maintenance of jigs and fixtures			○		
56	H4	Maintenance of cutting tools			○		
57	H5	Maintenance of measuring instruments				○	
I		Ensuring industrial safety and health					
58	I1	Application of work rules to CNC processing	○				
59	I2	Ensuring fire prevention in CNC processing	○				
60	I3	Ensuring safety when using electricityduring CNC processing	○				
61	I4	Prevention of work-related accidents during CNC processing	○				
K		Improvement of processing efficiency					
62	K1	Decision on conditions to improve CNC machinery and equipment					○
63	K2	Research in the improvement of CNC machinery and equipment					○
64	K3	Improvement of CNC machinery and equipment					○
65	K4	Application of machinery after its introduction and improvement				○	
66	K5	Guidance in the operation of CNC machinery after its introduction and improvement				○	
L		Career enhancement					
67	L1	Communication with customers					○
68	L2	Communication with colleagues					○
69	L3	Participation in skill training courses		○			
70	L4	Participation in skill competitions		○			
71	L5	Development of personnel lower in ability level than one					○

Source: National Occupational Skill Standard - CNC Metal Machining, December 2011, GDVT.

Table 5.3. Unit Structure of a CNC Metal Machining Job

	Item	Major descriptions
1	Work name	Title that enables workers to imagine what the work is
2	Work number	
3	Work description	Specific details of what constitutes the work
4	Work goal	Items that serve as goals to be achieved in the work and those to which attention must be paid to during the work
5	Required skills and knowledge	Indispensable skills and knowledge to perform the work
6	Conditions for performing work	Conditions such as materials, equipment, tools, documents, etc. necessary to perform the work
7	Skill evaluation standards	Items that provide guidelines to judge the appropriateness of abilities to perform the work. Evaluation method: Method to evaluate the abilities to perform the work. What should be evaluated, and how?

Source: Drafted by the authors.

Work in each unit is rated in five grades, in consideration of level of difficulty and complexity: Level 5 (highest) to Level 1 (lowest). As described below, the overall structure of NOSS differs greatly from the details of skills test standards in Japan, and there are also differences in the scope of abilities required for managers and supervisors at Level 5 (See Section 3.1). For example, the unit structure of a CNC metal machining job is as described in Table 5.3.

Generally speaking, competency-based skills evaluation determines whether a worker is eligible to obtain a skill certificate by assessing the achievement of work at the worksite of an enterprise based on a unit sheet corresponding to the targeted competency. This means that those who are certified for a particular work unit are presumed to be able to perform the work concerned at the worksite of an enterprise. As described above, certification for a particular work unit precisely corresponds with the ability to perform the work concerned at the worksite of an enterprise, and this characterizes competency-based skills evaluation. Table 5.4 shows the content of Unit No. 40 Work No. F6, one of the units that constitute the NOSS for the CNC metal machining job, 'Fixing of cutting tools based on the NC processing program.'

Table 5.4. Content of the Work: Fixing of Cutting Tools Based on the NC Processing Program

Work name: Fixing of cutting tools based on the NC processing program
Work No.: F6
I. Work description
Switch the inspection process for cutting tools and technical attachments to manual operation mode. And fix cutting tools based on the NC processing program
II. Work goal
- Level of precision at which cutting tools and technical attachments are fixed based on the NC processing program
- Level of carefulness, cautiousness, and accuracy; level of safety

III. Required skills and knowledge
1. Skill
   - Measurement using measuring instruments, reference to technical documents, and the operation of a CNC milling machine and a CNC machining center
   - Search for documents and assembly
2. Knowledge
   - Techniques to operate a CNC milling machine and a CNC machining center, CNC processing technology, and cutting theory
   - Checking and measurement and fixing of cutting tools

IV. Conditions for performing work
- Cutting tools and technical attachments, technical drawings, processing process slip, and NC processing program
- Manual and NC programming machine, CNC milling machine, and CNC machining center

V. Skills evaluation standards and evaluation methods

Evaluation standards	Evaluation methods
1. Fix cutting tools and technical attachments based on the NC processing program	1. Check cutting tools and technical attachments based on the NC processing program
2. Carefulness, cautiousness, accuracy, and safety	2. Directly check levels by model at the CNC milling machine and the CNC machining center based on the NC program

Source: Drafted by the authors based on GDVT (2011).

2.3. Establishment of an NOSS-based national skills evaluation system

The framework for Vietnam's national skills evaluation is built based on NOSS. Therefore, the national skill test, whose levels correspond to the work levels of NOSS, is divided into five grades from Level 5 (highest) to Level 1 (lowest). In addition to high-level skill and expertise, Level 5, the

Table 5.5. Level of National Skills Evaluation and Required Qualifications

Level	Description	Required Qualifications (One of the items specified below is mandatory)
5	Having high-level skills and being able to perform one's duties independently and responsibly through self-control. Possessing basic and specialized knowledge. Having the ability to analyze and judge and being able to draw up plans. Being able to analyze necessary information and make proposals. Being also able to manage one's team on one's own responsibility.	(1) Having two years of practical experience or more after obtaining a national vocational skill certificate Level 4 (2) Having five years of practical experience or more after obtaining a national vocational skill certificate Level 3 or completing a vocational training college course (3) Having eight years of practical experience or more after obtaining a national vocational skill certificate Level 2 or completing a middle-class vocational training course (4) Having eleven years of practical experience or more after obtaining a national vocational skill certificate Level 1 or completing an introductory vocational training course (5) Having 14 years of practical experience or more
4	Being able to perform one's complicated duties by oneself through self-control. Possessing basic and specialized knowledge. Being able to assess and analyze necessary information and make proposals. Being able to manage one's team.	(1) Completing the bachelor's course at university (2) Having two years of practical experience or more after obtaining a national vocational skill certificate Level 3 or completing a vocational training college course (3) Having six years of practical experience or more after obtaining a national vocational skill certificate Level 2 or completing a middle-class vocational training course (4) Having eight years of practical experience or more after obtaining a national vocational skill certificate Level 1 or completing an introductory vocational training course (5) Having eleven years of practical experience or more
3	Being able to perform one's complicated duties even without detailed guidance. Possessing basic and specialized knowledge. Being able to understand, assess, and analyze necessary information. Being able to guide other members in a team.	(1) Completing a vocational training college course for a job to be tested (2) Having two years of practical experience or more after obtaining a national vocational skill certificate Level 2 or completing a middle-class vocational training course (3) Having six years of practical experience or more after obtaining a national vocational skill certificate Level 1 or completing an introductory vocational training course (4) Having eight years of practical experience or more
2	Being able to perform simple, daily duties. Being able to perform complicated jobs under the guidance of a supervisor. Being able to collect information and explain about the collected information. Being able to work on a team.	(1) Completing a middle-class vocational training course for a job to be tested (2) Having two years of practical experience or more after obtaining a national vocational skill certificate Level 1 or completing an introductory vocational training course (3) Having four years of practical experience or more
1	Being able to perform simple, daily duties. Possessing basic knowledge. Being able to understand, pay attention to, and convey necessary information as required.	(1) Person engaged in a job to be tested with no qualifications particularly required (2) Having one year of practical experience or more in a job to be tested

Source: Drafted by the authors.

highest of all levels, requires the ability to analyze, judge, manage, and perform duties based on one's own responsibility. Level 1, the lowest, means having basic knowledge and being capable of performing simple, ordinary work. Details of each level of national skills evaluation are as described in Table 5.5.

2.4. The difficulty of competency-based skills evaluation and Vietnam's response

As described above, while the competency-based NOSS skills evaluation is very systematic, there are issues to be addressed when performing it in developing countries that are in the early stage of industrialization and have limited financial and human resources. The first issue is on the establishment of institutional mechanisms for industry engagement. The basic principle of competency-based skills evaluation is to assess the ability to carry out the work described in the unit sheet at the worksite of an enterprise.

The apprenticeship program in the United Kingdom, whose purpose is to acquire National Vocational Qualifications (NVQ) in the field of engineering, offers a system that enables workers to acquire qualifications for basic units (such as the operation of a lathe and basic element work) through off-the-job training (OffJT) at vocational training facilities and then acquire qualifications for applied units through on-the-job training (OJT) at the workplace of an enterprise. In this apprenticeship program, prior to the start of training, the assessors, the person in charge in an enterprise, and the trainee (who aims at acquiring qualifications) discuss and decide various issues, such as how to proceed with training for work units, how to assign work, and what should be preserved as evidence that shows the degree of work achievement. Once the training starts, the assessor visits the worksite once every one to two weeks to check the degree of work achievement by the trainee. The method used for interim evaluation is to confirm evidence, interview the trainee's superior and colleagues at the worksite to ascertain the progress in training and the degree of work achievement, and check the overall degree of achievement mainly through an interview with the trainee. In addition, the assessor provides consultation and offers advice on problems and other matters faced by the trainee and gives instructions, counsel, and so on for the next step.

When the work is completed, the assessor decides whether the trainee has demonstrated sufficient performance for the all units concerned. For reference, in the field of engineering, 1.5 years of training are required to acquire NVQ Level 2 qualifications and three years for Level 3. As is clearly indicated by the processes of the apprenticeship program mentioned above, it is impossible to carry out the entire CBT without the cooperation of enterprises. To that end, it is indispensable to build a system that urges many enterprises to understand the competency-based skills evaluation method and extend cooperation in implementing it. However, many developing countries have struggle to establish strong cooperation with industry (Mori 2019).

The second issue is the time and cost required to build a skills evaluation system. Competency-based skills evaluation takes a long time because all units in the unit sheet for a job are evaluated one by one. And this requires a great deal of work from the enterprise, assessor, and examinee (worker), including specific agreements on deliverables from work, observation of work processes and interviews by the assessor, and the organization of evidence showing that work has been performed. But many developing countries are urged to conduct skills evaluation in a short period of time, and in addition, they lack the financial resources needed to establish such a system.

Taking this situation into account, Vietnam has been developing its national skills evaluation system by combining two existing systems: competency-based skills evaluation and comprehensive skills evaluation, consisting of theoretical and practical tests.[4] There are many issues to be addressed when conducting competency-based national skills evaluation, including preparation of questions for assessment, development of assessors, and accreditation of assessment centers, but the Vietnamese government overcame these challenges through technical cooperation from Japan, South Korea, Australia, and other countries. In 2011, the first national skill test for mine excavating technology jobs was held for employees in the mine group of VINACOMIN, a SOE supervised by the Ministry of Industry and Trade (MOIT), at the Hongkang Mine Vocational Training Junior College in Quang Ninh Province. As explained in the next

[4] The term 'comprehensive skills evaluation' refers to the term used by the Ministry of Health, Labour and Welfare, Japan to describe the Japanese-style skills tests, which require an examinee to have a wide range of skills and knowledge required for future career progression to pass a test on a specific job. Also see Section 3.

section, national skills testing started with development cooperation from Japan.

3. Development of the National Skill Test with Japan's Development Cooperation

3.1. Overview of the Japan's national skill test

In Japan, the national skill test started in 1960 for the purpose of increasing workers' motivation to learn skills, increasing society's recognition of skills, and improving the skills and status of workers. Today, they are one of the major qualification systems in the country, and annually some 800,000 people take these tests. This section outlines: (i) their implementation and administration system; (ii) the scheme; and (iii) the testing methods.

3.1.1. Implementation and administration system

The implementation and administration of Japan's skill tests are undertaken by four organizations, dividing the roles in this process among them. Major roles are as listed in Table 5.6. In particular, skill test commissioners appointed by the prefectural vocational ability development association (PVADA) play a major role in the implementation and administration of skill tests (preparations, testing, and marking and evaluation).

The costs of the Japan's national skill test are covered by government subsidies (employment insurance premiums paid by business owners) and test fees as a source of revenue. Specifically, part of the funds for the ability development service, one of the two categories of employment insurance services paid by business owners as stipulated in the Employment Insurance Act, is channeled to skill test implementation, creating an environment that enables their stable implementation. Table 5.7 indicates employment insurance services and employment insurance premium rates against gross salaries.

3.1.2. Scheme

Job types for skill tests are chosen from among those which are highly needed in industry and society taking into consideration the number of workers covered, the education and training provided, and other factors. As of July 2018, 130 job types were chosen.

Table 5.6. Roles of Organizations Involved in the Implementation and Administration of the Japan's National Skill Test

Ministry of Health, Labour and Welfare	Japan Vocational Ability Development Association (JAVADA)	Prefectural governments	Prefectural vocational ability development association (PVADA)
• Creation of skill test standards and their details • Drawing up and announcement of annual implementation plans • Certification of questions for tests, implementation guideline, and marking criteria • Decision on criteria for success or failure in tests • Delivery of success certificates (Grade 1 or higher)	• Creation of questions for tests based on standards and details • Creation of implementation guidelines and marking criteria	• Setting of fees for taking tests • Drawing up of implementation plans • Public announcement of implementation • Decision on success and failure and announcement of successful examinees • Delivery of success certificates (Grade 2 or lower)	• Preparation of a guide to skill tests • Collection of examinees and acceptance of their applications • Collection of fees for taking tests • Delivery of admission tickets for tests • Appointment of skill test commissioners • Implementation of tests • Judgment on success or failure in tests

Source: Drafted by the authors based on 2018 materials from JAVADA.

Table 5.7. Employment Insurance Services and Employment Insurance Premium Rates (Fiscal Year 2020)

Structure of employment insurance services	Paid by business owners	Paid by workers
Benefits for unemployment, etc.	3/1000 or 0.3%	3/1000 or 0.3%
Two employment insurance services • Employment stability service • Ability development service	3/1000 or 0.3%	———
Total	9/1000 or 0.9%	

Source: Drafted by the authors based on information from the website of the Ministry of Health, Labour and Welfare (2019a, b, c).

Note: 1. The employment insurance premium rate can be changed by the Minister of Health, Labour and Welfare if certain requirements are satisfied in light of financial conditions (flexibility clause).
2. In principle, the employment insurance premium rate is 17.5/1000 or 1.75%, but due to annual reviews, the rate of 9/1000 or 0.9% has been applied since fiscal 2019.
3. The content of employment insurance services is annually evaluated by the Employment Insurance Section of the Vocational Stability Subcommittee, and the results of evaluation are reflected in the review of budgets.

Table 5.8. Grades and Criteria for the Japan's National Skill Test

Grade	Criteria
Special Grade	Degree of skills a manager or supervisor should usually have and knowledge thereof
Grade 1 and Single Grade	Degree of skills an advanced-grade technician (person with ten years of experience or more) should usually have and knowledge thereof
Grade 2	Degree of skills a middle-grade technician (person with five years of experience or more) should usually have and knowledge thereof
Grade 3	Degree of skills an introductory-grade technician should usually have and knowledge thereof

Source: Drafted by the authors based on the Ministry of Health, Labour and Welfare (2024).

There are four grades (Special Grade, Grade 1 and Single Grade[5], Grade 2, and Grade 3), and the levels of test are as listed in Table 5.8. In particular, Grade 3 was created when the scheme was revised to cover industrial high school students or similar, and many of these high school students apply for Grade 3. The Grade 3 pass certificate is used to emphasize the applicant's ability in job hunting activities.

The standards for the national skill test and their details consolidates in a systematic way the knowledge and skills required at each level (Special Grade, Grade 1, 2, and 3) of technician. In order to show concrete differences between Vietnam's NOSS and Japan's standards, Table 5.9 illustrates the standard for the Grade 3 skill test for machining center work and its details.

The theoretical test consists of knowledge required for technicians in machining jobs (common subjects) and knowledge required for machining center work (specialized subjects), because machining center work is one area of machining work. The test covers a wide range of knowledge in a systematic way, and it includes knowledge that is indispensable or that which technicians ought to or must have, and knowledge that it is desirable for them to have. On the other hand, the practical test, which is based on the list of element work that constitutes machining center work as clarified through job analysis, comprises elements that technicians at each level (introductory, middle, and advanced) must have the ability to perform.

[5] 'Single grade' means a skill test which is not separated by grade (The Ministry of Health, Labour and Welfare 2024).

Table 5.9. Standards for Grade 3 Skill Test of Machining Center Work

Theoretical test	
[Common subjects]	5. Material dynamics
1. Mechanical processing in general	Load, stress, and strain
(1) Types and uses of machine tools	6. Drawing
(2) Types and uses of turning tools, milling cutters, drills, and grinding wheels	Graphic methods, material symbols and fit system stipulated in the Japanese Industrial Standards (JIS)
(3) Types and uses of cutting oil	7. Electricity
(4) Lubrication	(1) Electric terminology
(5) Types of hydraulic equipment	(2) How to use electric machinery and instruments
(6) Types and uses of jigs and tools to be attached	8. Safety and health
(7) Measurement methods	Detailed knowledge of safety and health
(8) Quality control	[Specialized subjects]
2. Machine elements	Machining center processing methods
Types, shapes, and uses of main components of a machine	(1) Types, structure, functions, and uses of machining center
3. Mechanical processing methods	(2) Programming
(1) Marking in general	(3) Types and uses of cutting tools
(2) Hand finishing	(4) Cutting
(3) Other processing methods	
4. Materials	Practical test
(1) Types, ingredients, qualities, and uses of metal and non-metal materials	Machining center work
(2) Heat treatment of metal materials	(1) Programming
(3) Test of materials	(2) Machining center processing methods

Source: Drafted by the authors based on the Ministry of Health, Labour and Welfare Director-General for Human Resources Development (2020).

3.1.3. Testing methods

The Japan's national skill test adopts a comprehensive skills evaluation method consisting of a theoretical test and a practical test. The theoretical test, which is not designed to simply test academic knowledge, focuses on determining whether examinees have the proper judgment and knowledge required for the performance of work.

The format for setting questions for the theoretical test, which varies from one skill test grade to another, is as follows:

- Special Grade: Choosing from among five answers (50 questions);
- Grade 1, Grade 2, and Single Grade: Choosing from among four

answers (25 questions), and true-false questions (25 questions), for a total of 50 questions;
- Grade 3: True-false questions (30 questions).

On the other hand, the practical test, which consists mainly of tests on work such as production in which examinees are actually required to perform work, is characterized by its scoring and evaluation being based on a point deduction method. The manner of working and the time required for work are also scored and evaluated using the point deduction method, and examinees pass the test with a mark of 60 per cent or higher.

In principle, the qualifying criteria is 60 points or more out of a possible 100 for the practical test, and 65 points or more for the theoretical test. The ratio of successful applicants varies from one job type to another, but on average, it is about 60 per cent for Grade 3, 35 per cent for Grade 2, and 30 per cent for Grade 1. Even experienced workers have difficulty passing the test for Grade 2 or higher unless they practice and study considerably in advance. Certificates are all the more valuable because of such difficulty, and many enterprises treat successful applicants better in the workplace. There are also many enterprises that adopt the skill test for employee ability development.

In principle, taking a skill test requires practical experience in the job type to be tested. The number of years required is as indicated in Table 5.10 but may be reduced depending on factors such as history of vocational training and academic background.

3.2. Differences between Japan's skill test standards and competency-based skills evaluation

Japan's skill testing differs from the competency-based skills evaluation used by Vietnam, NOSS, which is outlined in Section 2, and both have their strength and weaknesses. A look at the overall structure of evaluation standards shows some similarities between Japan's skill test standards (see Table 5.9) and the Vietnamese versions of NOSS (see Table 5.2). Meanwhile, as found at Level 5 (Work Group A and L), the Japan's standards and their details do not include the abilities required at the manager level, including grasping customer needs and possessing skills in communication with customers. This is probably because Japan's skill tests do not include customer service in the category of managers' and

Table 5.10. Practical Experience Requirement for the Japan's National Skill Test

Special Grade	Five years of practical experience or more after passing Grade 1 test
Grade 1	Seven years of practical experience or more
Grade 2	Two years of practical experience or more
Grade 3	Less than six months (*Note)
Single Grade	Three years of practical experience or more

Source: Drafted by the authors based on JAVADA (2018).

Note: Those enrolled in the department related to the job type to be tested and those who are receiving vocational training in the training department can also take the test for this grade.

supervisors' essential abilities.

There are also differences in the scope of the technical and operating knowledge and skills covered. In Japan, as part of skill and knowledge required for managers and supervisors, the skill test standards for the Special Grade machining job and their details include theoretical test and practical test subjects in: (i) process control; (ii) work control; (iii) quality control; (iv) cost management; (v) safety and health management; (vi) work guidance (how to draw up education and training plans, provide education and training, job instruction, job method, and job relation, as well as education and training methods); (vii) equipment control; and (viii) worksite techniques related to machining work. In other words, compared to Vietnam's NOSS, Japan's skill tests seem to require managers and supervisors to have knowledge and skills in a wider range of areas than needed directly in their current job, even if that is simply to perform machining work.

It can also be said that Japan's skill test standards comprise knowledge and element work required in the long run. For example, persons who pass the Grade 2 test are presumed to be able to carry out work that can be performed by middle-grade technicians (with five years of practical experience or more). It may be difficult for successful applicants to immediately perform exactly the same work as that done at the worksite of an enterprise, but the criteria for Grade 2 show that they can handle a wide range of work if they gain some experience. In addition, a wide range of knowledge is used effectively in such aspects as work improvements at the worksite and in the originality and ingenuity exerted for work. But work to be tested does not correspond precisely to the work that one is in charge of (or will be in charge of after employment) at the worksite of an

enterprise.

By contrast, competency-based skills evaluation is characterized by precise correspondence between work (unit) certification and the ability to perform work at the worksite of enterprises. NOSS allows workers to easily obtain a clear understanding of the entire work, because the unit sheet describes work details in concrete terms. If examinees pass a test for work units that constitute machining center work, for example, they are recognized as being able to perform the work concerned at the worksite of an enterprise. In terms of knowledge, however, each unit only describes the knowledge required for the performance of work in that unit. For this reason, snippets of knowledge tend to be scattered throughout a unit sheet. This makes it rather difficult to understand the entire scope of knowledge required.

Reflecting differences in the knowledge and skills covered as described above, Japanese-style skill tests differ from competency-based skills evaluation in terms of the method of conducting skills evaluation as well. Rather than measure the ability to perform duties at the worksite of an enterprise, the Japan's national skill test assesses skills through theoretical tests and practical tests, which cover in a comprehensive way the skills and knowledge that technicians at each level (Special Grade and Grades 1, 2, and 3) must have and that it is desirable for them to have. The theoretical test consists of questions chosen from the systematically organized knowledge that technicians must have and the knowledge that it is desirable for them to have.

In Japan, the practical test is usually conducted at vocational training institutions or corporate training centers. For the practical test in machining center work, for example, the members of the committee that comprises representatives from industry and education and training providers carefully select from many types of element work those which they consider as particularly important to provide a comprehensive set of assignments (see Table 5.9). Therefore, if examinees can accomplish such assignments, they can also process similar products other than these. Worded differently, assignments are given by selecting the types of work that enable the assessor to evaluate the technical level of applicants if their performance in such work is evaluated. In addition to products given as assignments, the practical test evaluates the time required for work and the manner of work [items related to safety work, proper work

procedures, work methods, and 3S (*Seiri*, *Seiton*, and *Seiso*)[6]].

In contrast, competency-based skills evaluation basically assesses the ability to perform detailed unit work through a job at the worksite of an enterprise (see Section 2.4). Some unit work, however, is performed at practical training stations (workshops) with similar work conditions (such as equipment, machinery, instruments and tools, materials, and furnishings) and work environments (such as temperature, humidity, brightness, and workspace), although less frequently.

In short, competency-based skills evaluation aims at evaluating in a systematic way whether examinees can successfully perform the particular type of work they are required to do in their current job (or a job they are going to have in the immediate future). It clearly evaluates the skills required for the current job, but if long-term career development is taken into consideration, it somewhat lacks flexibility, because the scope of knowledge and skills it covers is limited (Mori 2019). The reason for this is probably the high liquidity of labor markets as typified by the phenomenon that businesses offer clear job descriptions and hire people who suit them and that many people change jobs rather than work for the same company for a long period of time.

On the other hand, it can be said that Japan's skill tests are designed to evaluate not only the skills required for the current job but also skills that have benefits for future transfers and promotions in the internal labor market in mind. For this reason, the evaluation standards and the scope of the skills covered are lenient if favorably evaluated, and unclear if strictly evaluated. This seems to be related to two facts that: (i) in-company promotion, including job rotation, is relatively common under the long-term employment system; and (ii) there are internal labor markets (Koike and Inoki 1990). Another possible reason is the influence of Japanese culture when making job descriptions: it is not very common to clearly and concretely indicate all tasks required for a particular position in a job description. In other words, it can be seen that CBT and the Japan's national skill test have developed in European or Anglo-Saxon countries, and Japan, respectively, based on the corporate cultures and systems, industry-academia partnerships, and other factors in these

[6] See Chapter 3 about the definition of 3S, which is part of 5S which include *Seiketsu* and *Shitsuke*.

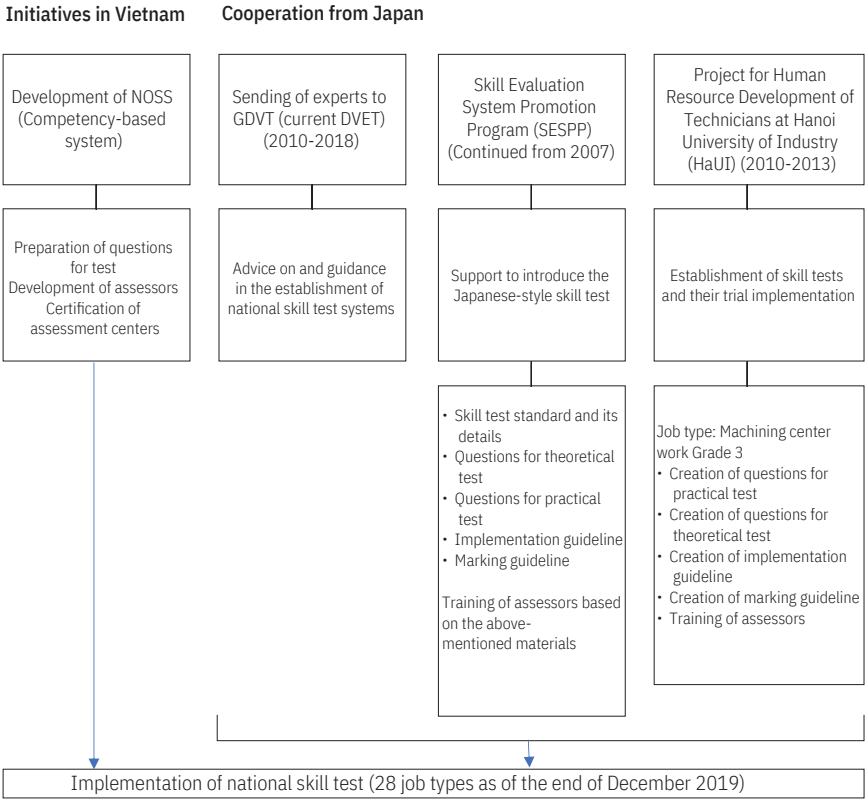
respective countries. Of course, as exemplified by the phenomenon that Japanese-affiliated businesses are seeing their long-term employment system collapsing (Brown, Green, and Lauder 2001), the skills evaluation methods are likely to undergo changes as society and industry change.

3.3. Japan's development cooperation in the implementation of national skills evaluation in Vietnam

When Vietnam conducted national skills evaluation, Japan extended development cooperation in three ways (see Figure 5.1): (i) dispatching JICA experts to DVET; (ii) implementing the Project for Human Resource Development of Technicians at Hanoi University of Industry (HaUI) (hereafter called the HaUI-JICA Project); and (iii) implementing the Skills Evaluation System Promotion Program (SESPP).

First, from 2010 to 2018 three JICA experts were dispatched to GDVT, (renamed DVET later) for two to three years for each. The major duty of these experts was to introduce Japan's skill testing system and its methods used to conduct skill tests and support Vietnam's initiatives for adopting them. For example, as indicated in Figure 5.1, the JICA experts dispatched to GDVT provided cooperation before the first national skill test for the mine excavating technology job described in Section 2.3 was carried out. GDVT/DVET learned the way Japan conducted skill tests through information and advice provided by the experts as well as knowledge and experience gained from SESPP. In addition, making the most of knowledge acquired mainly from South Korean and Australian methods, GDTV developed questions for theoretical tests and practical tests, developed assessors through assessors training programs, accredited the assessment centers, and performed other tasks.

These JICA experts also cooperated with the HaUI-JICA Project and SESPP described later. In particular, they worked closely with SESPP in deciding the programs to be offered, the persons eligible for joining the programs, the places where the programs were implemented, program periods, and other details. This is in part because those experts were dispatched from the Ministry of Health, Labour and Welfare, which has funded and supervised SESPP. Further details of two other projects involved more deeply in the implementation of national skills evaluation—the HaUI-JICA Project and SESPP—are described below.



Source: Drafted by the authors based on the JTB SESPP secretariat (2019), Hayaki (2012), Furuta (2015), Uchino (2018), and Mori et al. (2013).

Figure 5.1. Initiatives of Vietnam for the Implementation of the National Skill Test and Japan's Technical Cooperation

3.4. Establishment of a skill test in the HaUI-JICA Project

As described in Chapter 3, the HaUI-JICA Project was implemented from 2010 to 2013 with the aim of: (i) introducing a permanent management cycle that enabled the university to improve education and training to meet the needs of industry; (ii) conducting pilot skills tests; and (iii) establishing a better system to support students' job hunting (JICA 2014). The major result on which this chapter focuses is the conducting of pilot and national skill test for machining center work, which corresponds to Level 2.

3.4.1. Reason to select machining center work for a pilot skill test

In the beginning, Japanese experts and HaUI management staff had different thought on the target job for a pilot skill test.

The JICA experts dispatched to GDVT recommended that turning and milling would be suitable as the first job type related to metal machining in launching the national skill test, and the JICA experts dispatched to HaUI also submitted a similar proposal to the university. In machining jobs, conventional turning machine and milling machine are widely used. If the process of learning skills and techniques is considered, a student can acquire skills and techniques more smoothly if he/she first learns basic processing techniques through work at general-purpose lathes and milling machines and then shifts to processing using numerically controlled (NC) machine tools. From the viewpoint of evaluating workers' skills through general-purpose machines, it is possible to evaluate the basic and important items in machining work such as: (i) whether workers perform work using appropriate methods and procedures; and (ii) whether they process workpieces under appropriate cutting conditions.

However, HaUI strongly requested skills evaluations for machining center work. The reasons for this request were: (i) that processing work using NC machine tools was generally more appealing to industry than that using lathes and milling machines, because it was based on the latest technology; (ii) that many Japanese-affiliated and Vietnamese enterprises were using machining centers in their factories; and (iii) that by conducting skill tests for machining center work at the university and making the most of machining centers installed there through JICA technical cooperation and other projects, HaUI could emphasize the high level of its education and training and consequently attract the attention of industry and improve its reputation. As the result of several discussions and taking into account the importance of respecting HaUI's sense of ownership and the government's definite promise for support, the Japanese experts compromised and agreed to establish skill tests for machining center work.

3.4.2. Development of test questions and assignments

In formulating a Level 2 skill test for machining center work, HaUI aims to develop theoretical and practical test questions that meet the actual

situation of Vietnam and the needs of enterprises, while referring to Grade 3 machining center work standards and their details in Japan's skill tests.

Their test questions were developed in line with the NOSS for CNC metal machining, which was also adjusted in accordance with the situation in Vietnam and HaUI's strategies. The NOSS on which the Level 2 skill test was based has been drafted with the cooperation of GIZ, but at a meeting of the NOSS Development Committee, the authors, who participated as observers, were requested to make comments on the structure of NOSS and give advice on the division of levels for work units. In particular, they proposed to shift the basic knowledge and work that operators should acquire to Level 2, because they were currently positioned as Level 3 or 4. Based on this advice, the Vice President of HaUI, who presided over the discussions, revised the division of levels for work units.

The practical test for Grade 3 machining center work in Japan consists of a written test for practical skills and an assignment, in which examinees make a program for assigned diagram, and draw the programmed diagram by using a CNC machine tool. However, it does not include an assignment for processing a workpiece using a machine. As the result of consultations, it was decided to adopt processing using a machine as an assignment for the practical skill test, as emphasized on the Vietnamese side. Consequently, the skills evaluation test for machining center work has comprised: (i) a theoretical test; (ii) a written test for practical skill; and (iii) a practical test (processing using a machine). Accordingly, HaUI started developing questions for these tests.

In deciding the areas of questions for theoretical tests and the scope of questions to be set, the university referred to the standard and details for Grade 3 machining center work in Japan's skill tests. The scope of subjects for theoretical tests in Japan is very broad, and many of them are not included in the curriculum of vocational colleges in Vietnam. It was decided, therefore, that for Level 2 (equivalent to Grade 3 in Japan) machining center work, questions should be set in 13 areas taking into consideration the subjects included in the curricula of vocational college courses in Vietnam.

The HaUI working group members, with technical guidance from JICA experts, also decided to develop a written test for practical skill with three elements: (i) selection of tools suitable for processing; (ii) calculation of

offset volume for workpiece coordinates; and (iii) programming. The questions for the corresponding skills test in Japan include the completion of a program by entering commands and values in all processes from the start of programming to its end. But the assignment asking examinees to develop a main program and subprograms in all processes from the start to the end demands too high a level of ability and takes too long to be completed. Therefore, taking into consideration the practical skill training provided for machining center work at Vietnamese vocational colleges, the question for Level 2 machining center work has asked examinees to complete programming by entering appropriate commands and values in the blank spaces for just 10 processes.

Following the Level 2 mine excavating technology skill test which was conducted as the first national skill test, the theoretical test consisted of 50 questions with three choices. The Grade 3 theoretical test in Japan comprises 30 true-false questions. Test questions were drafted using the procedures described below. First, the JICA experts presented and explained several samples of practical test assignments and theoretical test questions. Second, six members of the working group consulted with one another to decide assignments and areas for which they were responsible and developed assignments and questions while referring to the samples presented. Third, all of the six members reviewed and revised the assignments and questions. Fourth, they improved the assignments for practical tests through trial processing with machine tools to check cutting conditions and programs. Finally, they reviewed all processes and questions together to complete a final version of the questions. After several trials, a prescribed set of practical assignments was completed. Meanwhile, a total of 210 questions in 13 areas were completed for the theoretical test, and it was decided that one test should be made up of 50 questions chosen from among various areas.

Practical skills assessment using machines has consisted of top surface processing using a face mill, profile processing using an end mill, and chamfering, and drilling. This is unique to Vietnam, since the practical test in Japan does not assess skills using a machine. It is assumed in Japan that technicians who already have processing skills using general-purpose machines (such as ordinary lathes and milling machines) take the skill test, and their cutting skill have been proven by skill tests for turning, milling, and other similar types of work. Therefore, the practical test in Japan excludes mechanical processing assignments to evaluate processing

skill and instead focuses on programming. In Vietnam, on the other hand, when machining center work was developed as a job type for skills testing, tests for machining job types such as turning and milling had not been established. For this reason, there was no skill test to evaluate machining skill at all. Taking this situation into consideration, the working group discussed the importance of evaluating processing and measuring skills in machining center work and decided to assess processing skills using a machine. But setting machining skills tests by adopting the opinions of the counterpart made it possible to evaluate not only the processing skill of examinees but also their skills in fixing and removing materials, their measuring skill using micrometers and vernier calipers, and other skills. This is worthy of note in that it sheds light on the evaluation of basic skills, an evaluation item not found in Japan's practical tests.

In developing these tests, the JICA experts focused on providing examples, giving advice for problem-solving, and waiting for the members of the working group to complete questions on their own while managing the overall schedule, rather than setting questions by themselves. They also held a meeting with the working group members once every two weeks to examine and revise the content of test questions as well as their degree of difficulty and appropriateness, to complete test questions properly. Through these regular meetings with specific agenda, the group members learned how to develop appropriate test questions, thus improving their ability for skill test development steadily.

Following the completion of test questions, the working group started to draft an implementation guideline for the practical tests, as well as marking criteria and procedures and other guidelines. In parallel, the training of assessors was implemented. The implementation guideline in Japan described work procedures mainly by text, but this makes it difficult to grasp the entire flow of work. Thus, in developing a Vietnamese version of the implementation guidelines, as the JICA experts provided the idea of introducing a flow chart at the meetings with the HaUI working group members. They decided to include such a chart in the implementation guide. As a result, the guide became user-friendly and enabled users to understand work procedures easily without long texts and reduce mistakes. It can be said that this is the result of continuous improvements through adopting the ideas of the counterpart.

When the implementation guidelines for practical tests, marking criteria

and procedures, and other guidelines were completed, a pilot skill test was carried out using second-year students in the machining course of HaUI's Vietnam-Japan Center as examinees. Through this pilot skill test, the six members of the working group, who served as assessors, improved their practical ability to implement and operate the skill test. And based on the results obtained from the pilot test, they revised and finalized the implementation guidelines for practical tests, marking criteria and procedures, and other documents.

3.4.3. Implementation of the national skill test for CNC machining center work

In October 2012, HaUI submitted an application to acquire the accreditation of Level 2 machining center work as a national skill test to GDVT, together with the results of pilot skill test and a total of 17 kinds of documents, including the implementation guidelines for practical tests, scoring criteria and procedures, and other implementation documents. Later, in November 2012, HaUI was accredited by GDVT as a national skill assessment center for a machining center work. In addition, GDVT strongly requested the university to conduct Level 2 machining center work as the national skill test, and HaUI hastily decided to do so within December. In strongly requesting the university to conduct the skill test for Level 2 machining center work, it is inferred that GDVT suggested HaUI conduct the national skill test for three main reasons. The first reason was that Level 2 machining center work is the first job type addressed by the national skill test in the field of machining and that this is expected to appeal greatly to manufacturing-related enterprises. In addition, if this succeeded, GDVT would be able to accumulate knowledge on the establishment of subsequent skill tests for machining job types. Second, GDVT may have valued the application documents, including implementation documents, submitted by HaUI for accreditation. They would have expected that HaUI could conduct the national skill test successfully by utilizing these documents developed based on the pilot skill test. Finally, since the HaUI-JICA Project was scheduled to end at the end of January 2013, various kinds of technical advice would be obtained by conducting the test before the closure of the project and the departure of the JICA experts.

HaUI working group members who worked as assessors during the pilot skill test were appointed as assessors again for the national skill test.

Following GDVT's request to add four new external assessors from the outside when the test was conducted, a system was put in place in which the training of these additional assessors was undertaken by JICA experts and the leader of HaUI's working group.

As the result of a review by the working group, the BT-30 machining center manufactured by a Taiwanese electronics company, Foxconn, which the assessors were familiar with handling, was used. It was also decided that the maximum number of examinees should be 10, with three units from the machining center (one being a spare) prepared. The members of the working group played a leading role in preparing for and conducting this skill test, and the JICA experts took the attitude of giving advice and paid attention so that they did not provide too much guidance.

Machining centers used by enterprises vary from one manufacturer to another in terms of performance, functionality, programming, operation method, and so forth. Therefore, the working group looked for Japanese-affiliated, Vietnamese, and other enterprises that used Foxconn's BT-30 machining center for production and collected examinees so that a sufficient number could be secured. As a result, the president of a Japanese-affiliated manufacturer of electric and electronic equipment, who was active at the Japanese Chamber of Commerce and Industry, offered to let 10 employees take the skill test as part of its employee training program. The national skill test for machining work was the first of its kind in Vietnam and the first experience for examinees from a Japanese-affiliated enterprise. Since they could not even imagine what the test was going to entail, they were somewhat concerned. Therefore, the project decided that the skill test should be carried out after they received training to prepare them for taking the test. Roles were divided among HaUI working group members when preparatory lectures were given. Based on this process, a national skill test for Level 2 machining center work was conducted at HaUI in December 2012. As a result, four of the 10 examinees passed the test.

The HaUI-JICA Project was completed in January 2013. Subsequently, Level 3 machining center work was developed while making the most of the experience gained from the development of Level 2 machining center work. Currently, Level 2 and 3 machining center work tests are conducted as the national skill test.

3.5. Technical cooperation through SESPP

SESPP has been conducting its activities in Vietnam since 2007.[7] By implementing three programs: (i) Skills Evaluation Method (SEM); (ii) Skills Assessor Training (SAT); and (iii) Skills Evaluation Trials (SET), as described in Table 5.11, SESPP aims to develop the capacity of assessors who can conduct and administer skill tests by learning Japanese-style testing and evaluation methods, including practical test questions. It also strives to help Vietnam to establish a system that enables it to conduct and administer skill test independently. The SESPP secretariat works with Japanese experts and the Ministry of Health, Labour and Welfare, Japan, to draw up implementation plans and carry out programs by dispatching experts in the areas requested. The Public-Private Joint Committee,[8] which is convened between December of each year and January of the next year, examines reports on the implementation of the current year's plans and its results. In these, suggestions for improvement, policy for the coming year, the needs of corporate users, the opinions and requests of participants (including Japanese-affiliated enterprises), and other matters are presented and, based on the results of the examinations, develops annual implementation plans for the following year. The major programs of SESPP are as listed in Table 5.11.

In June 2018, as the result of dispatch of JICA experts to GDVT and support from SESPP, the Japan's national skill test for turning and milling (Grade 3) was recognized as equivalent to the Vietnam's national skill test for Level 2 (see Tables 5.5 and 5.8); the former was conducted at Hanoi Industrial Vocational College (HIVC) and the latter at HaUI. The assignments for practical test were adjusted in terms of work time, tolerance, and roughness requirement as explained below, taking into consideration the actual conditions in Vietnam.

The work time (test time) for Level 2 milling work was slightly extended

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7 Information as of December 2023 (SESPP 2023).

8 The Public-Private Joint Committee, which provides a forum for information gathering and exchange to formulate plans for the following year, is convened once a year with representatives from DVET, which is involved in the implementation of SESPP, evaluation centers (such as HaUI, Hanoi Industrial Vocational College (HIVC), and Saigon High Tech Park Training Center (SHTP-TC)), Japanese-affiliated enterprises, the Japanese embassy, the JICA Vietnam office, the JETRO Hanoi office, the Ministry of Health, Labour and Welfare, the SESPP secretariat, and other related organizations in attendance. The annual meeting of the Committee is hosted by the SESPP secretariat.

Table 5.11. Major Programs of SESPP

Programs	Description
1. Skill Evaluation Method (SEM)	Training to learn how to create questions for theoretical test and practical test based on the skill test standard and its details
2. Skill Assessor Training (SAT)	Training to give necessary knowledge and skills to conduct and administer skill test. Learning the duties and roles of assessors in the process of preparation, implementation, marking, and evaluation for skill test through subjects and practical exercises
3. Skill Evaluation Trial (SET)	Training in which persons who have completed SAT aim at improving their practical abilities by conducting and administering skill evaluation trial as a skill assessor on a trial basis (Eligible persons are those who have completed SAT). In SET, the questions for theoretical test and practical test in Japan are used, and tests are conducted in the same way as in Japan for evaluation.

Source: Drafted by the authors.

because the rigidity of milling machines installed at vocational training facilities in Vietnam was low, making heavy cutting impossible. The reason for this is that while the standard work time for practical test assignments in Japan is set on the assumption that a vertical milling machine with integrated spindle head and column is used for processing, SESPP experts made an alternative proposal, arguing that the standard work time needed to be extended slightly, because vertical milling machines installed at many of the vocational training facilities in Vietnam did not have such an integrated structure and their rigidity was low. Therefore, the SESPP experts and their counterpart worked together to cut materials on a trial basis using a less rigid vertical milling machine as pointed out, examine the materials processed, and calculate the time required for processing. As a result, both parties confirmed that it was appropriate to extend the standard work time by 15 minutes, thus setting a standard work time suitable for Vietnamese machines.

In relation to the dimensional tolerance and roughness of finished materials used in the evaluation standards for practical test assignments, the evaluation items for Level 2 turning were reworked, to better consider the turning tools widely used in Vietnam. The reason for this is that Chinese-made carbide tips are widely used at vocational training facilities in Vietnam. If compared with Japanese- and American-made ones, these carbide tips are less expensive but have a low level of processing performance (roughness of finished surface and processing accuracy), and there was concern that they would fail to satisfy processing specifications

Table 5.12. Number of Certified Assessors (by Job Type and Grade)

	Job types	Number of certified assessors
1.	Grade 3 turning	14
2.	Grade 2 turning	11
3.	Grade 3 milling	5
4.	Grade 3 mechanical inspection	16
5.	Grade 2 mechanical inspection	6
6.	Grade 2 information network cabling	4
7.	Grade 2 sequence control work	5
	Total	61

Note: All numbers indicate the total number of certified assessors, because some of them are certified for both Grade 2 and 3.
Source: Drafted using data on the results of SESPP projects implemented in fiscal 2019.

in the practical test assignments. Following the comments of the SESPP experts, their counterpart actually manufactured test assignments using a lathe to confirm the processing accuracy of the manufactured products. As a result, they decided to adopt a method of marking by slightly relaxing the standards for the roughness of finished surface and processing dimensional tolerance.

In addition to turning and milling, SESPP has been helping the Vietnamese government establish national skill tests for mechanical inspection, information network cabling, and sequence control. In particular, there are strong needs for turning and mechanical inspection among Japanese-affiliated enterprises. In the case of turning, the capacity is set for 10 examinees due to the number of machines available, but there are 20-25 applicants for each round of test. While the capacity for mechanical inspection is 20 examinees, 70-80 people apply in each round of testing. For this reason, adjustments are continuing to be made so that a disproportionate number of examinees are not assigned to particular corporate test sites and that examinees are evenly distributed there. As of 2019, through SESPP, a total of 61 (certified) assessors capable of conducting and administering Japanese-style skill tests have been produced (see Table 5.12). They are expected to play a central role as assessors when the job types with which they are concerned are adopted as one of the national skill tests.

As of October 2019, the national skill test has been expanded to cover 28

job types, including welding, industrial electricity, industrial electronics, mechatronics, automotive technology, CNC metal machining, turning, and milling, and by 2017, the number of examinees had grown so much that it exceeded 23,000.

3.6. Differences between SESPP and the HaUI-JICA Project

Due to differences in the main modality of technical assistance, the implementation and guidance strategy of SESPP differs from that of the HaUI-JICA Project. SESPP is introducing the Japan's national skill testing system into Vietnam and providing support for adopting it, aiming at developing assessor capacities to conduct and administer skill tests. And it has extended support for job types for which a national skill test has not been conducted in Vietnam and for which there are high needs among Japanese-affiliated enterprises. Therefore, in conducting skill tests, it focuses on using Japan's skill test questions rather than urging counterparts to develop them from scratch, providing assessor training and carrying out skill evaluation trials in the same way as in Japan, and lets assessors understand and learn the Japanese way of testing as it is.

For this reason, relevant Japan's skill tests have been partially revised to suit the actual situation in Vietnam, including the condition of machines installed in vocational training facilities in the country and the turning tools widely used there, and such revisions as the slightly extended work time and partly relaxed evaluation standards can somewhat be cited as examples of translative adaptation, but other aspects of the tests are all conducted in the same way as in Japan and are based on the same standards as those used in Japan. The first priority is therefore to learn the Japanese way of testing and provide guidance but recognize the need to revise this according to the results of implementation and in a way that suits the actual situation in Vietnam, keeping in mind that in the future national skill tests will be conducted more widely.

Since SESPP's main implementation modality is to dispatch Japanese experts for a short term, spanning around one week, it has used an instruction method featuring short-term intensive training in which experts demonstrate and teach how to evaluate, lets trainees evaluate through role play and practical exercises, and confirms the results of training. But this is intended to provide short-term guidance, and therefore, there is naturally a limit to the method in which experts train

assessors while confirming whether their counterparts fully understand the content of guidance and make it an integral part of their knowledge and skills.

On the other hand, the HaUI-JICA Project developed all elements that were needed for Level 2 machining center work, including test questions and implementation guidelines, while referring to Japan's skill test standards, questions and implementation guidelines for practical tests, NOSS for machining center work, and so forth. In this project, the JICA experts collaborated with their counterparts to examine the content of the test questions, verify the appropriateness of the degree of difficulty, and so forth, taking into account the actual situation in Vietnam, and they completed these tasks by adopting the Vietnamese experts' ideas as required. For example, from the viewpoint of Japanese experts, they adapted themselves in a way that met the intentions of their counterparts and suited the situation in the country by: (i) selecting machining center work as a job type for skill tests; (ii) determining the scope of questions for theoretical testing while taking into consideration the actual situation of Vietnam; (iii) setting a processing assignment using a machine for practical testing; (iv) deciding specifications for programing assignments; (v) creating evaluation items and standards that corresponded to assignments for practical tests; and (vi) formulating implementation guidelines for those practical tests that adopted a flow chart.

This project allowed the JICA experts to work with their counterparts for a long period of time (about two years), which enabled them to perform their duties while confirming their counterparts' degree of understanding and the application abilities they had cultivated. As a result, they were able to respond flexibly to their counterparts according to the level of what the latter had learned. In other words, while SESPP, which provided support by directly introducing techniques using the short-term development method, is close to the 'normative approach' as mentioned in Chapter 2, the HaUI-JICA Project adopted a 'hands-on' approach, and from the viewpoint of Japanese experts, this encouraged adaptation in the work process. However, this relies on the viewpoint of Japanese experts. Therefore, as the result of field research, the following section describes how the Vietnamese counterparts, the beneficiary of the technical cooperation project, perceived the process.

4. Findings of the Field Study

4.1. Research method

The research adopted a qualitative research based on interview data. Thus, the authors conducted the interviews with TVET institutions, government, and industry involved in national skill tests in Vietnam from October 14 to 19, 2019 (see Table 5.13).

4.2. Adoption of Japan's national skill testing system

The interview data indicate that the Vietnamese government has introduced and implemented various foreign countries' models according to job types for skill testing by adapting them to the situation of the country. For example, Japan's model was introduced for skill test for machining center work, turning, and milling. South Korea's model was introduced for welding and Australia's for tourism-related jobs. The evaluation method slightly differs according to the job types concerned, but a comprehensive skills evaluation method, consisting of theoretical tests (test time varies from one skill level to another but ranges from 60 to 100 minutes) and practical tests (test time varies from one skill level to another but ranges from two to four hours), has been applied for job types except jobs in the tourism sector for which a competency-based

Table 5.13. Profile of Interviewees

No	Pseudonym (Organization)	Number of Interviewees	Pseudonym (Interviewee)
1	HaUI*	4	Board Member A, Former Board Member A, Senior Expert A, Head of Department A
2	Vocational College A	2	Board Member A, Director A
	TVET Institutions	6	
1	Government Agency A	3	Director A, Staff A, Staff B
2	Public Research Institution A	1	Deputy Director A
	Government	4	
1	Japanese Automotive Parts Supplier A	2	Director A, Director B
2	Japanese Mechanical Parts Supplier A	2	Director A, Manager A
3	Japanese Business Association A	1	Manager A
	Industry	5	
	Total Number of Interviewees	**15**	

Note: *The actual name of organization was shown since it is obvious that this research focuses on HaUI.

evaluation method is applied.

As mentioned in Section 2.4, it is difficult to use the competency-based skills evaluation method in developing countries immediately, because it means heavy burdens in terms of time, labor, and cost. According to the interview data, it is likely that, realizing this situation, Vietnamese counterparts adopted the Japanese-style skill test as a practical choice:

> Competency-based evaluation should be performed on a unit-by-unit basis but cannot be done so in Vietnam at present. The reasons are: (i) there are not enough assessors, because a sufficient number of assessors have not been developed; (ii) the workplaces of enterprises are not in a position in which such evaluation can be performed; and (iii) it is too costly. Therefore, given the present situation in Vietnam, it is unreasonable to apply the competency-based evaluation method. From Japan's skills evaluation system, the Vietnamese experts learned how to evaluate using Japan's national skill testing method (which evaluates skills through theoretical and practical tests) and the point deduction method. Japan's system is extremely effective when it is adapted to what Vietnam is today. (Deputy Director A, Public Research Institution A)

In this respect, the assessment centers expressed similar opinions:

> When NOSS for machining center work was developed from 2011 to 2012, it was based on competency, but I think that the evaluation systems are changing with the times. During the HaUI-JICA Project, a competency-based evaluation system was developed, and GDVT (current DVET) tried it, and as a result, it did not work well, and therefore, the department changed it to Japanese-style comprehensive skills evaluation. HaUI has not attempted a European approach. We have performed skills evaluation with the support of the Japan Vocational Ability Development Association (JAVADA). I think that the SESPP being implemented by JAVADA best suits the actual situation in Vietnam. (Former Board Member A, HaUI)

> It takes too much time and labor to obtain qualifications through unit-by-unit evaluation. It is more economical to set assignments (questions for theoretical and practical tests) by picking the knowledge and skills required for all units that constitute a job type. Japan's comprehensive skills evaluation system is suitable for the present situation in Vietnam. (Senior Expert A, HaUI)

According to the results of the interviews, the Vietnamese counterparts do not see the needs to categorize their skills evaluation system into as a particular type, such as a European or Japanese one. While the skills standards are based on competency, the skills evaluation method follows the Japan's national skill test. This combination seems to lack consistency from the viewpoint of the donor countries from which these models originate. However, the Vietnamese counterparts consider that it is quite natural to extract implementable elements from existing models, taking into consideration local abilities and circumstances:

> I think the matter of choosing an approach depends on the managers. For me, I think simply like this. I don't know much about other evaluation systems, but as a teacher and an expert in vocational education management, through my experience of approaching the Japan's skills evaluation system, I see that your system is easy to use, and for the time being applicable, and can attract workers to take part in the assessment. For Vietnam now, I think this model is the most appropriate. (Senior Expert A, HaUI)

Another characteristic of the Vietnamese way of thinking is that emphasis is placed on the current situation of the country. Recognizing that the country lacks human and financial resources to conduct competency-based skills evaluation, government agencies also expressed similar opinions when adopting Japan's skill tests as a realistic choice:

> Now we use the competency-based assessment standard. But for testing and certification we still adapt the Japanese scoring standard. This standard is very good, and it is not only accepted by governmental agencies but also industry and the business community. […] Actually, the competency-based standard evaluates the skills of labor

> on one single unit of competency. But in the situation of Vietnam, it is quite difficult to adapt, because of the lack of human resources. Also, I think Vietnam is not ready for this kind of evaluation, as it is conducted mostly at the companies. Moreover, I myself can understand the flow of this evaluation's cost but our experts have not experienced how to calculate it. (Deputy Director A, Public Research Institution A)

This sounds a short-term thinking, but it is practical that they intend to start from what they can do immediately.

On the other hand, the skills assessment centers that implement skill tests and government agencies that control them have shown different perceptions of the selection results of skills evaluation methods. The former regards Japanese-style skill tests as a positive choice as indicated by the comments quoted above. However, the latter adopts them as a passive choice as a remedy for the situation where competency-based skills evaluation is not realistic, even though it is highly desirable. It seems that the government agencies maintain that their intention is to expand competency-based skills evaluation in the future:

> So, we know that what we are adopting is not a 100 per cent competency-based standard, but basically, we are trying to adapt it. […] The Australian model is relatively clear and not as complicated as the German model. Also, Australia is supporting ASEAN to develop the ASEAN Qualifications Reference Framework (AQRF). (Deputy Director A, Public Research Institution A)

As described above, the government considers it difficult to conduct competency-based skills evaluation immediately, but competency-based skills evaluation is an ideal option. For example, in the tourism sector in which cooperation from private enterprises and industry associations are secured, the government has been conducting competency-based skills evaluation in an almost complete manner. Tourism-related job types, for which skills are evaluated based on competency, consist of housekeeping and front desk operations, with bed making, guest-room cleaning, and other sorts of work included in the former. Hue Tourism College has workshops, equipment, and machinery for practical exercises that enable

skills evaluation for these types of work, and skills evaluation is conducted through work test (practical test) and interviews on a trial basis:

> Yes. We have conducted the evaluation (by applying the competency-based model) on 2 careers: housekeeping and front office. […] I think in the near future Vietnam will not be able to do the true evaluation of the competency assessment. We lack the resources of experts, we are not allowed to set the high price for conducting the assessment as the laborers are not rich in general, etc. (Deputy Director A, Public Research Institution A)

Nonetheless, it is too costly to install facilities, equipment, machinery, and other infrastructure for practical exercises at many TVET institutions. Therefore, government officials also understand the difficulty in expanding competency-based skills evaluation nationwide at this moment.

The interview data show that the intention of the Vietnamese side was to adopt Japanese-style skill test as the most realistic choice. However, this does not assure that the government agencies will apply Japanese-style skill tests to all sectors and, furthermore, maintain them over in the long run. This is mainly because, in theory, the government officials prefer competency-based skills evaluation, in which the evaluation criteria precisely correspond to the content of actual work to be performed at enterprises.

4.3. Process of translative adaptation at skills assessment centers

Section 3.3 discussed the translative adaptation based on the views of Japanese experts in the HaUI-JICA Project. This section analyzes the perceptions of the Vietnamese counterparts. First, they chose CNC metal machining rather than more basic turning and milling as skill to be tested, and they seem to believe confidently that such a decision was appropriate:

> In my opinion, we utilize everything we have in hand. Japanese experts approached from low level to high level, but we did the opposite way, and it was okay. (Senior Expert A, HaUI)

Meanwhile, a former HaUI board member commented that it was essential to revise the test questions and assignments:

> I think that the assignments presented by JAVADA are ideal. But they are difficult for enterprises and examinees if they are used in Vietnam as they are, and therefore, it is necessary to develop assignments that suit the actual situation in Vietnam. (Former Board Member A, HaUI)

This comment coincides with that of Director A at Government Agency A, who said, 'I do not think that advanced country models work in Vietnam if they are introduced as they are. It is necessary to build models that suit the actual situation in Vietnam.' Previously, the Vietnamese government strongly intended to introduce advanced countries' models directly or borrow models from advanced countries (Mori and Stroud 2021). There have been growing signs, however, that it is gradually inclining itself toward translative adaptation through models that are revised so that they suit the actual situation in Vietnam. As described above, the results indicate that with respect to the overall framework of skills to be tested as well as test questions and assignments, the government has a strong intention to translate the Japanese-style skill test in a way that suits the situation in Vietnam.

The HaUI-JICA Project was completed in January 2013. Subsequently, Level 3 machining center work was developed while making the most of the experience gained from the development of Level 2 machining center work. Currently, Level 2 and 3 machining center work are conducted as the national skills test:

> The development of Level 3 machining center work used the same method as that of Level 2 machining center work. The development of Level 2 was undertaken through collaboration between the JICA experts and the members of the working group. Such collaborative work also placed emphasis on the development of human resources, helping improve the practical abilities of Vietnamese staff members and enabling the smooth development of Level 3. (Head of Department A, HaUI)

The ability to continue the national skill test seems to have been established

by digesting and internalizing Japanese experts' advice flexibly:

> But for Japanese partners, when developing a project, you figure out a specific roadmap: training partners, giving instructions on working method with clear explanations. The Japanese way is more systematic, and most importantly, Japanese experts help their partners improve their capacity. (Head of Department A, HaUI)

This indicates that HaUI expanded the skill tests in a more autonomous way based on the abilities enhanced through the project.

With respect to job types other than machining center work, HaUI has also received technical cooperation from other countries, mainly in providing support for the development of the national skill test for welding. The university recognizes that these countries have different development cooperation strategies from Japan:

> Country A emphasizes results. Results are obtained because Country A lets its counterpart divide roles when conducting skill test, but the ability to implement the entire skill test project is not acquired. In addition, the counterparts' ability development is not emphasized in the course of the project. (Head of Department A, HaUI)

In other words, the Japan's development cooperation projects tend to concentrate on the development of human resources, taking an approach in which Japanese experts assist their counterparts to perform their respective jobs and take the lead in delivering results. It takes time before results are produced, but the university recognizes that the counterparts' abilities are improved during the process in which the project is advanced.

HaUI, whose abilities were improved as mentioned above, is in marked contrast to other skills assessment centers. Assessment centers are DVET-certified organizations that conduct national skill tests. As of December 2018, a total of 41 organizations, including vocational colleges, universities, and SOEs, are accredited, but their abilities vary considerably. Assessment centers consist mainly of vocational colleges or other TVET institutions, in which lecturers and other staff from specialized departments (such as machinery and electricity) undertake relevant duties for skills tests,

concurrently with their regular teaching tasks. Only a small number of the assessment centers have personnel dedicated to skills evaluation. For example, Vocational College A, which serves as an assessment center, has faced challenges in undertaking all the duties required of a skills assessment center, particularly the public relations that would secure a sufficient number of examinees from industry. This is because their staff are busy with the duties of their specialized departments. In addition, unlike HaUI, the college has not led the development of test questions, even though their staff participate in the committee for the development of test questions as a member.

It is inferred that few assessment centers manage to assign dedicated staff for skills testing and secure the support from industry, as HaUI had done by taking advantage of the results of the HaUI-JICA Project. HaUI not only conducts and administers national skill tests but also offers short-term training courses for company employees based on the requests from their employers (see Chapter 4). Since it has developed strong relationship with enterprises through these activities, they can secure an enough number of examinees from industry. Furthermore, the results of vocational education and training that have long been obtained through JICA projects are favorably evaluated by the MOIT and DVET, and because of this, HaUI has been commissioned to develop NOSS and test questions for many job types. In short, there are large differences in ability among assessment centers.

Nor can it be said definitely that improvement of the Vietnamese counterpart's abilities as mentioned above is something that is universally found in Japan's technical cooperation. It is pointed out, for example, that in SESPP, another development cooperation project of Japan, there are few examples of adaptation as described above:

> I think Vietnam did not go exactly the same way as JAVADA, rather a little adjustment has been made. In my opinion, we should review the two systems. We want to combine the JAVADA model with the Vietnamese model to form a more appropriate skills assessment system for Vietnam. I think the core of the Japanese model should remain the same but there should be some adjustments. (Senior Expert A, HaUI)

This is largely owing to factors such as its project implementation

modality, which features the short-term dispatch of experts. The following section discusses whether this implementation method cannot encourage translative adaptation.

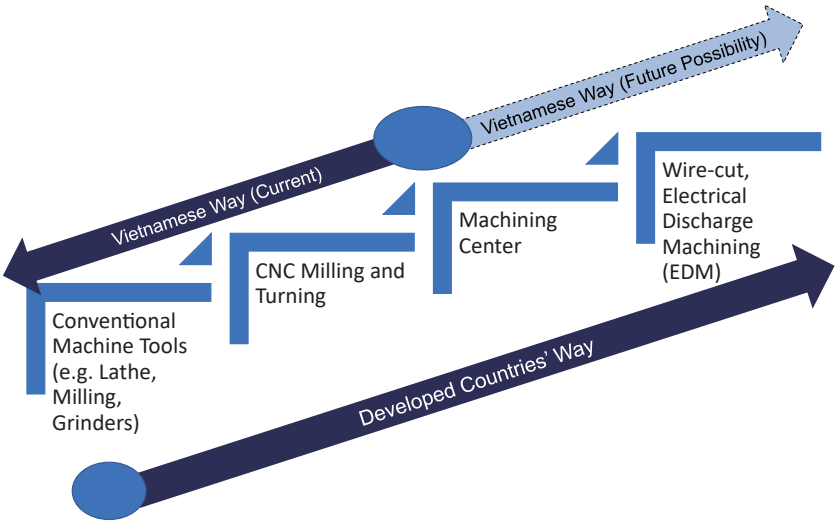
5. Discussion

5.1. Necessity for clashes of opinion during the formative period of activities

As described above, translative adaptation has begun as Japanese experts exchanged opinions with their counterparts but eventually respected their intentions, in the case of the HaUI-JICA Project in which HaUI has established skill tests. The existence of this ownership of the counterparts and the respect for it were factors in establishing the counterparts' independence further and contributing to the subsequent development and sustainability of skill tests.

What is important here, however, is the fact that there were exchanges of opinion or sound clashes of opinions when the skills to be tested were narrowed down. This process allowed the counterparts to refine their opinions and policy, and probably contributed to making their activities more sustainable. In this respect, HaUI's case has something in common with that of CIAST described in Chapter 4. Without this process, or if the Japanese experts had simply accepted the opinions of HaUI from the very beginning, the results achieved would have been less, or subsequent activities would have been made less sustainable.

If HaUI had easily compromised with the opinions of Japanese experts, what results would have been brought? As they advised, the typical way of vocational training and skills evaluation is to proceed from basic to applied skills. Accordingly, the assignments for practical training for machining jobs usually start from processing with conventional machines (such as turning and milling machines) and advance to that using NC machines (NC turning and machining centers). But HaUI's initiative for establishing the national skill test for machining center work followed exactly the opposite pattern (see Figure 5.2). As a result, it took six years from the time when the national skill test for Level 2 machining center work was developed to the time when the tests were completed for Level 2 milling and Level 2 turning. These tests could have been established in a shorter period of time if they just followed the guidance from Japanese experts. In doing so, however, they would not have obtained a stronger



Source: Drafted by the authors.

Figure 5.2. Development Paths of Machining Job Skill Tests between Vietnam and Developed Countries

sense of ownership and a willingness to continue activities.

The authors cannot anticipate the results of different scenarios as discussed above. However, at present, HaUI is at least operating the national skill tests built through Japan's development cooperation as its own. Possible reasons for this success are: (i) that the Vietnamese counterparts had a certain intention about the future course in and after the project from the beginning; and (ii) that there were exchange or sound clashes of opinions between them and Japanese experts at the early stages.

5.2. Dynamism of translative adaptation

The results of field interviews show that policymakers and an implementing agency, HaUI interpret the current conclusion on the skills evaluation system, a hybrid skills evaluation system that combines competency-based skills standards and Japanese-style skill tests, in a different way. The former regards the system as a passive choice, having the intention of shifting to a competency-based system in the long run. On the other hand, the latter, HaUI in particular, regards the present situation as highly positive.

This indicates the dynamism of translative adaptation. Under the present circumstances, there are three scenarios for the future course of skills evaluation systems in Vietnam. The first is to further develop the current hybrid system, which seems to be slightly arbitrary from the donors' viewpoints. This means building a model that is different from that of advanced countries. The second scenario is to keep the Japanese-style skill tests strictly as a short-term solution and shift to completely competency-based skills evaluation in the long run particularly when a system of cooperation with industry is established, according to the views of government officials interviewed. The third scenario is the choice of shifting to a completely the comprehensive skills evaluation system based on the Japan's national skill testing method. Under the present circumstances, however, it seems that government officials have a stronger intention of maintaining competency-based skills standards.

The authors believe that a skills evaluation system that combines competency-based skills evaluation, which originates from Europe, with assignments for Japan's comprehensive skills evaluation suits the actual situation of Vietnam.

In developing countries where industry engagement in TVET is weak, it is more realistic to conduct skill tests at TVET institutions by clarifying basic work and applied and practical work based on job analysis setting training assignments for basic work. Training assignments may not correspond precisely to the details of applied and practical work performed at the worksite of enterprises. Nevertheless, it is possible to provide high quality training through setting assignment which require complex and multi skills. But it is difficult to predict the dynamism and strategies of Vietnamese stakeholders involved in TVET, as typified by the fact that they selected CNC metal machining as the target job for the pilot skills test rather than operation of conventional machine tools.

5.3. Methods of technical assistance and translative adaptation

Aside from the general evaluation of development cooperation projects based on the standards of the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD), the HaUI-JICA Project, and SESPP, are in striking contrast with each other in light of technical assistance modalities and translative adaptation. The former, which followed the 'hands-on' approach, encouraged translative

adaptation, while the latter has been promoting the almost direct import of the Japan's national skill test in the 'normative' approach.

As described above, this difference is largely due to whether or not experts were dispatched to Vietnam and stationed there over a long period of time. Certainly, there is no doubt that in order to provide hands-on guidance and make project activities and results tailor-made, it would be desirable for Japanese experts to be physically stay close to their counterparts at all times, exchange opinions closely through formal and informal discussions, and establish close relationships and rapport. But as the period of development cooperation tends to become shorter and budgets are being limited, dispatching many international experts overseas would become increasingly difficult. Is it impossible to encourage translative adaptation under these circumstances? It may be difficult, but in order to maintain the characteristics of Japan's development cooperation, the authors believe that it is essential to find methods that enable the country to promote translative adaptation despite these restrictions. Even if technical assistance is provided on a short-term basis, there should be a way to allow counterparts to have a stronger sense of ownership about their activities and results and thus encourage translative adaptation of foreign models. In this respect, the Manufacturing Human Resources Development Program in Dong Nai Province described in Chapter 7 gives some hints.

6. Conclusions

Based on the authors' experience and the results of field interviews, this chapter examined the development process of a hybrid national skills evaluation system in Vietnam that integrates competency-based skills evaluation and the Japan's national skill test and discussed the relationships between translative adaptation and Japan's development cooperation in the process. The research presented a very unique case of adaptation of foreign skills evaluation systems. The Vietnamese counterparts translated the Japan's skill testing system through development cooperation projects and combined it with competency-based skills evaluation learned from international organizations and European donor countries. Behind this uniqueness are two elements. For one thing, the Vietnamese counterparts have a flexible and pragmatic way of thinking in which they are open to various types of skills evaluation systems in developed countries. Moreover, they have become increasingly aware of the need to adapt

developed countries' models in their social, economic, and institutional contexts. The research findings also suggest that sound clashes of opinions in the formulation stages are an important factor in the success of translative adaptation.

On the other hand, it is necessary to closely watch what course Vietnam's national skills evaluation system will take in the future. The current hybrid system has delivered a number of results, but there are challenges remaining. For example, the abilities of skills assessment centers for industry engagement vary a lot. In addition, the evaluation criteria and methods are not sufficiently standardized among skills assessment centers. At the moment, it is hard to predict how Vietnam will overcome these challenges and whether it will continue to evolve its current model as a new type of skills evaluation system or shift to the complete adoption of the European or Japanese models. In other words, translative adaptation is a dynamic process. In order not to hinder this dynamism, donor countries need to avoid attempting to force the Vietnamese system to conform to their own types, while presenting their own and other examples for reference.

As Vietnam has become increasingly aware of the necessity to adapt foreign models for their social, economic, and institutional contents, the future development of the country's national skills evaluation system and its factors will provide interesting lessons for other developing countries.

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CHAPTER

6

Skill Certification and Development in Thailand: A Case Study of Skill Certification Systems for the Automotive Industry

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1. Introduction

Thailand is regarded as one of the successful cases of industrial development among emerging and developing countries. Behind this success, the country has concentrated on overall human resource development to make its industries internationally competitive. In particular, skill development has been pursued by the efforts of private firms and formal education institutions. As discussed in this chapter, development cooperation from Japan has contributed to supporting such efforts.

In the case of the automotive industry, even if it is required to advance their technology for 'connected, autonomous, shared and service, electric' vehicles, there is still a need to achieve further skill development for production. Skills development can play an important role for human resource development in combination with practical working experience. This is necessary because each employee needs to improve their productivity to cope with labor shortages, higher wages, and increased competition with other emerging and developing countries. To achieve human resource development efficiently and effectively, it is a major challenge to create a skill certification system in addition to skill development, because the establishment of a certification system needs a more deliberate effort by the private and public sectors.

The Thai government and the business community have established several skill certification systems. The most comprehensive system so far is the National Skill Standards and Tests system implemented by the Department of Skill Development (DSD), Ministry of Labor and Social Welfare, with more than 200 skill standards. In addition, under the Prime Minister's Office, the Thailand Professional Qualification Institute

(TPQI) was established in 2011 and has implemented a competency-based professional qualification system to cover the areas that have not been implemented by the DSD's system. However, there are overlaps between the two.

This chapter focuses on the Skill Certification System for the Automotive Industry (SCSAI), a project implemented as a part of Japanese development cooperation from 2006 to 2011. The project activities and their consequences are investigated from the perspective of translative adaptation. SCSAI was one of the sub-projects of the Automotive Human Resource Development Project (AHRDP) that aimed at human resource development in the industry. Thailand Automotive Institute (TAI), an agency responsible for supporting the development and promotion of Thai automotive industry, was a counterpart organization. By the completion of the SCSAI sub-project, a system had been established for skill test and related training for 17 operational types in the industry. Note that the related training was explicitly built into the system, to substantiate the skill test under the condition of insufficient skill development among its main target, the local lower tier of auto parts manufacturers. Moreover, the Japanese National Skill Test was referred in order to introduce the Japanese 'comprehensive skill certification system.' The resulting system is much smaller in scale compared with the skill certification systems of the DSD but requires a higher level of skills for satisfying the demand from industry, particularly from Japanese affiliated companies.

A bibliographic survey and field research were conducted for the study. For the former, reports by experts and documents from related organizations were reviewed. For the latter, the author visited Thailand in late November to early December 2019 and conducted 13 interviews with the parties concerned. These included TAI, the counterpart organization, and the Automotive Human Resource Development Academy (AHRDA) that was anticipated would implement the skill certification and development. Furthermore, to make clear the features of SCSAI, information on some of the other sub-projects under AHRDP as well as the National Skill Standards and Tests of the DSD and the professional qualifications of TPQI was collected.

The collected data were analyzed qualitatively by utilizing the 'proposed process of translative adaptation' and the matrix of the 'target objective and delivery mode' discussed in Chapter 2 as the analytical framework for

the book. After this introduction, the 2nd section of the chapter elaborates on the achievements by SCSAI and other sub-projects focusing on skill development under AHRDP. The 3rd section analyzes their sustainable implementation after the project period. In these two sections, SCSAI and the other sub-projects are compared in terms of their common scope: skill development. In the 4th section, other skill certification systems in Thailand will be referred to for comparative purposes and to explore their potential coordination with SCSAI. The 5th section is for discussion about applying the data and information collected into the analytical framework explicitly. The final section presents the conclusion of the chapter.

2. The Skill Certification System for the Automotive Industry (SCSAI) and the Automotive Human Resource Development Project (AHRDP)

2.1. Overview of AHRDP

Among the past support projects for industrial human resource development by the Japanese government, AHRDP was one of the most conspicuous from the point of view of the number of experts and the time spent. Also, we should note that it was implemented through a public-private partnership between the Japan External Trade Organization (JETRO), the Japan International Cooperation Agency (JICA), and Japanese companies.

In AHRDP, three Japanese automakers, Honda, Nissan, Toyota, and a mega-supplier, DENSO took charge of the sub-projects, respectively. The project provided a total of 7,601 persons with the opportunity to acquire knowledge and skills relevant to the industry. A cascading system was used to realize this number, that firstly developed Thai trainers and then supported them to train Thai trainees. More specifically, the main target of training by the Japanese experts was to upgrade core human resources such as the master trainers involved in the training of trainers, general trainers, and examiners for the skill tests. The Thai trainers were in charge of training Thai trainees, with the support of Japanese experts in some sub-projects. The activities were conducted in four fields: (i) management and manufacturing training, (ii) mold and die training, (iii) the skill certification system (SCSAI, skill test and related training), and (iv) the lean production system (see Table 6.1 for more details). Considering that the number of workers in the automobile industry at that time was approximately 400,000, it was calculated that nearly two per

Table 6.1. Outputs of the Sub-Projects under the Automotive Human Resource Development Project

Sub-project	Organizing firm	Output
Management and manufacturing training	DENSO	11 training courses were conducted, with a total of 2,703 participants (of whom 60 were trainer course participants and 2,643 were general trainees)
Mold and die training	Honda	Based on 4 curricula, 24 metal processing courses were organized with a total of 2,122 people participating in the training (of whom 26 people were trainer course participants, and 2,096 were general trainees)
Skill certification system (SCSAI, skill tests and the related training)	Nissan	Lecture courses were organized on 17 different topics, with the participation of 774 people (of whom 132 participated in examiner training, 189 in trainer training, and 453 participated as general trainees)
Lean production system	Toyota	2,002 people participated in five courses (of whom 43 were trainer course participants and 1,959 were general trainees)
Total		7,601 people participated in the training projects

Source: Mitsubishi Research Institute (2017).

cent were participants in this training, and the magnitude of the impact is outstanding as a single project.

2.2. Learning and translative adaptation in SCSAI

Before starting AHRDP, Japanese manufacturers were dominant in the Thai automotive industry, accounting for more than 90 per cent of the production volume. For this reason, Japanese assemblers and parts manufacturers tended to believe that the Japanese way of production and management is the ideal way to enhance efficiency and effectiveness of the industry, though adjustments were necessary to reflect the situation in Thailand, such as the existence of more labor-intensive production technologies because of relatively cheaper wages. On the other hand, local Thai second- and third-tier suppliers had the motivation to learn the Japanese way, as they expected to acquire and expand transactions with Japanese-affiliated companies, even if it was challenging and not feasible at least in the short term. In that regard, it is considered that the industry was accommodating the Japanese way. At least at that time, the Thai public-private sector also naturally accepted the transfer of Japanese-based technology and know-how.

The SCSAI was no exception. Just like the other projects in the automotive industry supported by the Japanese public and/or private sectors, it depended mainly upon the Japanese way—in particular, Japanese National Skill Tests with 'comprehensive skill certification.' The system though, was modified and translated according to the situation in Thailand to some extent.

Before AHRDP, the skill certification system was developed in 2003 and 2004 for five operations in four jobs, supported by Japanese development cooperation. Relationships between Japanese organizations and Thai local organizations were established at that time and they were useful for restarting the project described in this Chapter. From that time, the skill certification system has been operating at three skill levels, equivalent to the Japanese National Skills Tests 1, 2, and 3. For the Thai automotive industry to further enhance its international competitiveness, these levels should be set as targets, and it was considered that this could be sufficiently feasible in the mid- and long term. However, the skill levels of the DSD's system are lower than those corresponding to actual automotive manufacturing, which may require higher precision.

The following section summarizes the process entailed in the SCSAI sub-project based on the literature review of the project reports made by experts (JETRO 2006, 2007, 2008). At the start-up stage, on the basis of discussions with Honda and DENSO, who were in charge of different training sub-projects at the same AHRDP, the experts selected 12 types of operations in eight types of jobs for skill test development. When combined with the five operations in four jobs that were established before the start of the sub-project, the whole system when launched contained 17 operations in 11 job categories, as shown in Table 6.2 (the job type 'machining' was implemented in both projects). For the previous project, technical committees were established for each job type, to implement activities with local ownership. Also, for SCSAI, technical committees for new job types were added, each with five to six people from private companies and two to three from public institutions including the DSD. For each of the 11 job types, TAI staff were assigned. Unfortunately, the TAI facilities were not qualified enough for the activities. Therefore, as an examination site, the National Institute for Skill Development (NISD, currently Samutprakarn Regional Institute for Skill Development: SRISD) was selected because of the low start-up cost, and sufficient instructors' qualifications as candidates to be examiners and trainers. There was also

Table 6.2. Skill Certification System for Automotive Industry by Job and Operation Type

Project	Job	Operation
Assistance for Developing a Skill Certification System for Automotive Industry (2004-05)	Metal press work	Stamping
	Plastic injection	Plastic injection
	Ferrous casting	Ferrous casting
	Machining	Lathe
		Milling
Skill Certification System for the Automotive Industry (SCSAI) (2006-11)		Lathe with numerical control
		Milling with numerical control
	Finishing	Die and mold finishing
		Mechanical assembly finishing
	Electronics device assembly	Electronics device assembly
	Electrical device assembly	Sequence control (PLC)
	Mechanical drawing	Mechanical drawing by Hand
		Mechanical drawing by CAD
	Pneumatic circuits and apparatus devices assembling	Pneumatic circuits and apparatus device assembling
	Hydraulic system adjustment	Hydraulic system adjustment
	Maintenance	Mechanical maintenance
		Electrical maintenance

Source: JETRO Bangkok Office (2016).

the idea that it would be a steppingstone for future integration of SCSAI into the National Skill Standards and Tests of the DSD.

For this discussion, practices indicating policy borrowing are introduced first. For most types of operations, all the test questions, evaluation criteria, etc. were transferred from the Japanese National Skill Tests. Also, in all of the four operations (lathe with numerical control, milling with numerical control, die and mold finishing, and mechanical assembly finishing) that were carried out for the first time under SCSAI, the applicants were required to deal with a broader range of exam questions, including ones in areas not undertaken by the production-related employees of many local companies in Thailand. This broad range was set according to the direction of skill development based on the practices at Japanese production sites. In this regard, the aspect of policy borrowing seemed to be very strong.

This idea was also applied to the selection of job and operation types. From the second year of the sub-project, areas related to maintenance and design, rather than direct manufacturing skills, have been actively taken up. Specifically, there are eight operations: electronic device assembly, sequence control (by programmable logic controller, PLC), mechanical drawing by hand, mechanical drawing by computer aided design (CAD), pneumatic circuits and apparatus device assembling, hydraulic system adjustment, mechanical maintenance, and electrical maintenance. These are considered to be basic skills for the maintenance and management of equipment.

Many local companies were interested in the skills directly related to the products they made, but were indifferent to the skills required by their peripheral support, and relied on equipment and machinery manufacturers for these. Thus, with their focus on developing human resources in the industry over the medium to long term, the Japanese experts deliberately stepped into areas where local companies did not feel it very necessary to be, though applicants from those firms were expected to expand and be a major part of their development in the future. For example, the method of mechanical drawing is a common language for the manufacturing sector in Japan, and the drawings are master information resources that everyone ultimately stands by. However, this type of 'common sense' found in Japanese manufacturers was not observed in the Thai manufacturing industry. Therefore, the experts also added the operation of handwriting. Even though CAD was already widely used in Thailand, they thought that the experience of actually writing lines and symbols with one's own hands was essential in the initial stage of skill development.

Contrary to the points mentioned above, there are some aspects where translative adaptation was observed. For example, concerning the skill test questions, it was not possible to utilize those in the Japanese skill tests for pneumatic circuits and apparatus devices assembling, hydraulic system adjustment, and mechanical maintenance. This was because the essential idea of the Japanese national skill test is based on the 'goodness of mind theory.' These three operation types have a common characteristic that can be distinguished from the others. It is that the tests cannot be made without setting very specific task patterns to complete the test process within a reasonable time. On the other hand, in workplaces the examinees face a much greater variety of task patterns. The potential dark side of this

is, even if the skills of the examinees as a whole do not reach the level of the grade, if they focus on the specific test task and learn that effectively, they may pass. In Japan, supervisors and senior peers would prevent the examinees from undertaking this kind of misbehavior, but in Thailand the experts could not be optimistic and feared that the examinees would obtain inside information on the task. Therefore, the Japanese experts and Thai counterparts agreed to require the examinees to practice multiple tasks at the test. As a result, the tests on the three types of operations necessitated a wider range of content than those taken in Japan.

Another more general aspect of translative adaptation was found in the training for the examinees before taking the skill tests. In Japan, companies mainly support the improvement of skills at the individual level. Furthermore, it is common for examinees to study on their own initiative while receiving support such as using the facilities of the company. In Thailand, especially for local auto parts manufacturers (so-called tier-2 and tier-3 manufacturers) that have no direct transactions with automotive manufacturers, it is difficult to rely on in-house on-the-job training and off-the-job training. When the Japanese experts exchanged views during company visits, they got requests to create opportunities for learning in preparation for tests. The interviewees at the firms were afraid that the examinees from their firms may not be able to pass the tests without prior learning and the Japanese experts and their Thai counterparts felt the same way. As a result, training was implemented prior to skill tests for the sub-project.

Moreover, to further spread the skill certification system, collaboration with other sub-projects of AHRDP, management and manufacturing training, and mold and die training was also achieved. Specifically, when selecting the type of jobs and operations at the time of launch, the Japanese experts decided to give priority to areas closely related to the training in the two other sub-projects. SCSAI also had the idea that the trainees of the other sub-projects would have to take their skill test, but this was not put into action due to a mismatch between the relatively higher level of test (starting from level 3) and the lower level of the trainees, especially in the early stage of AHRDP.

Finally, choosing TAI under the Ministry of Industry as a counterpart might have led to higher levels of translative adaptation compared with selecting other organizations, even though there has been room for

further improvements. From the Japanese government's perspective, the entire AHRDP was designed and implemented by an initiative of the Ministry of Economy, Trade and Industry, and JETRO, hence the Ministry of Industry is their counterpart in the Thai government. On the other hand, there were a large number of Japanese experts dispatched to the TAI, not only for the skill certification system development project in the previous stage, but also for roving expert technical support and so on. Thanks to these achievements, the local firms in the automotive industry recognized the presence of TAI. Therefore, to start the skill certification system development in the industry more smoothly, it was likely the best option to ask TAI to be a counterpart. Meanwhile, it is also necessary to pay attention to the integration of SCSAI with the national skill test system or at least seek their effective coordination in the long run. For this, they made efforts to have the participation of the DSD as a member in the steering committee of the sub-project and in the technical committee for each job type. The utilization of the facilities of NISD was also decided partly due to the same purpose. JETRO (2008) also stated that since the signing of the MOU with the Ministry of Labor in March 2007, there had been a positive attitude towards support for the sub-project, making it easier to carry out activities.

One important point to note is that the above-mentioned adjustment was carried out mostly by the initiatives of the Japanese side, especially by the experts. TAI and the Ministry of Industry did not have the experience of developing and operating skill certification systems. In that sense, within the main activities of SCSAI the Japanese experts recognized that they were dealing with a greenfield situation. On the other hand, the study found that the Thai counterpart's active engagement with the Japanese experts enhanced their learning. It is expected that such learning process enabled internalization of the acquired knowledge, leading to sustained utilization of the skills in each institution as mentioned in Section 3. A potential disadvantage was that 'insufficient' translative adaptation by the counterpart organizations would lead to a problem when they need to make further adjustments to the systems by themselves.

2.3. Skill development in other sub-projects of AHRDP

Commonly, the core part of AHRDP lies in the training of Thai trainers. Focusing on this point, this sub-section examines whether or not translative adaptation was seen in the process of implementation of some of the other

sub-projects of AHRDP.

First, mold and die training was conducted at Honda Thailand for large molds in the 1,000-ton class, covering all processes of mold development and manufacturing. Specifically, a curriculum was adopted that targeted all four types of jobs, including design, CAD/computer aided manufacturing (CAM), machining, and finishing. Trainees learned the basic contents of all jobs beyond the boundaries of their own job. To give an example, before moving on to specialized training for each job, everyone participated in training on finishing beyond the basics. In the 'Finishing basics' area, they were requested to make adjustments to test pieces by cutting and welding, whereas, in the more advanced 'Finishing' area, they made trial stampings with three processes using a semi-finished medium-sized mold for the rear door panel. The mold was to be finished by checking the shape of the trial product. A plan for scheduling and costs was also created so that the process could proceed like the actual manufacturing operation. At first the trainees wondered why they had to learn skills beyond their specialization. During the course, the Japanese experts explained to them the importance of understanding the process as a whole, hence they are required to learn the skills that are not directly related to their specialization. After the trainees were given this explanation, they were able to understand the intention behind the training curriculum/course.

The Honda headquarters in Japan used to adopt the same method for their employees in the mold and die section generally, but it had become difficult to continue this method due to the progress of the division of labor resulting from busier work in the 1990s. In that sense, it is considered that the training at Honda Thailand adopted the ideal training curriculum for the training of trainers, by taking advantage of the opportunity provided by development cooperation.

One more point is the efforts of the successor organization. The Thai-German Institute (TGI) was in charge of the training by the Thai trainers who had learned from the Japanese experts. For the training of trainers, TGI could not provide their facilities due to the unavailability of 1,000-ton class stamping machines. Therefore, Honda Thailand provided the facilities in their factory. Training by Thai trainers began in 2007 as in-house training for colleagues, and from 2008, TGI adapted the training at Honda Thailand to 25 courses of training with a smaller size of stamping machines. Honda was not involved in the training conducted in this way

and TGI operated independently. TGI's application can be understood as translative adaptation and that was possible as they already had a lot of experience in mold-related training management.

Next, management and manufacturing training by DENSO consisted of seven courses. For management, Total Quality Management (TQM), Training Within Industry-Job Instruction (TWI-JI), Training Within Industry-Job Relation (TWI-JR), and Workmanship Training Course (WSTC) were made available. For manufacturing, a general course (safety, quality management, 5S, *Kaizen*, Total Productive Maintenance (TPM)), a machinery course, and an electrical course were implemented.[1]

Since the Japanese experts had utilized the same teaching material for DENSO Thailand, the translative adaptation process was considered to have been completed as a result of trials and errors before starting the sub-project. But the Japanese experts were also flexible enough to improve their procedures when a better idea became available. For example, TWI-JR covers the human relationship between supervisors and subordinates and therefore needs to rely on the social and cultural background. The experts had already prepared the material for explanations based on the case of Thailand, but they added another case based on the discussion with their trainees who would be trainers for Thai trainees. Specifically, the trainees were required to learn the practice of 'asking why five times in a row' to reach the real cause of a problem. For this learning, the examples of the human relationship issues at Thai workplaces were prepared by the experts. However, the discussion led the Japanese experts and their trainees to at first use 'the reason why the then King Bhumibol was respected and loved by the Thai people,' because this was a familiar example and easily understood by them.

[1] The 5S approach consists of: (i) sorting; (ii) setting in order; (iii) shining; (iv) standardizing; and (v) sustaining (JICA 2018). It is widely recognized by enterprises as a useful means to improve productivity and work environments. The core value of *Kaizen* is placed in creating an attitude shared among all members of an organization who consistently pursue advanced levels of quality and productivity, and not just applying its management method. *Kaizen* is a comprehensive system that consists of broad technologies such as 5S, 7 Quality Control (QC) tools, Total Quality Management (TQM), Toyota Production System (TPS), Lean Production System, etc. to pursue activities under this core value. See JICA (2018).
Total productive maintenance (TPM) is 'the productive maintenance carried out by all employees through small group activities', where productive maintenance is maintenance management which recognizes the importance of reliability, maintenance and economic efficiency in plant design. See Nakajima (1988).

3. Deployment after the Project Period

3.1. Current status of and scaling-up from SCSAI

During the implementation of the sub-project, Japanese experts hoped that SCSAI would be integrated into the National Skill Standards and Tests of the DSD. However, in reality, this idea did not proceed. As a result, integration between the two systems has not been achieved as is described below.

For SCSAI, TAI as the local counterpart organization decided to utilize the facilities of NISD in consideration of the limited space. After the completion of AHRDP, the mechanical equipment was therefore transferred to NISD's management, but they did not involve in skill certification as mentioned later. TAI came to be in charge of the succeeding Automobile Human Resource Development Institution Project (AHRDIP) and they had no available resource to continue implementing skill certification. However, from 2017 (after the end of AHRDIP), TAI started implementing 4 out of the 17 operation types created by AHRDP again. These are all related to automation (mechanical assembly finishing, sequence control (PLC), pneumatic circuits and apparatus device assembling, and hydraulic system adjustment), and this was done with the support of the Ministry of Industry. Since the funds came from a budget for promoting Thailand 4.0, a policy aiming at industrial sophistication to get out of the 'middle-income trap,' only operations related to automation were supported.

Current training and certification are conducted at SRISD, the former NISD, where mechanical equipment is installed, just like TAI did for SCSAI. During the time of AHRDP, not the SCSAI trained trainers and examiners, but Japanese experts were in charge of all the preparation for skill standards and the tests. For this reason, even after the completion of the SCSAI sub-project, the tests continue to be implemented with the same test questions and scoring standards as at the beginning. The experts' 'excessive' involvement in SCSAI was necessary to implement the planned activities effectively due to the time and resource constraints in TAI, while that was the very reason why policy and institutional learning was not widely possible. Also, because training and certification is conducted within the budget and without any financial burden on the trainees, it is limited to small-scale implementation and is not widely used in the entire industry. The current TAI staff in charge of skill certification are afraid that the examinees will not participate if TAI asks them for

payment. Judging from the current status of SCSAI, there is no substantial prospect of integrating it into the National Skill Standards and Tests of the DSD, therefore, it is reasonable for TAI not to be very active in related activities.

At SRISD, the DSD established the Automotive Human Resource Development Academy (AHRDA) in 2014 as a training institute for the automotive industry. It was intended to succeed the activities of SCSAI and the management and manufacturing training under AHRDP. The academy came to own the machinery and equipment used for SCSAI. Moreover, in fact, the DSD (and AHRDA) did not intend to take charge of skill certification, although SCSAI (or at least its Japanese experts) hoped to transfer this activity, too. Indeed, skill certification was not within the scope of AHRDA's mission. The fact that the DSD operates the National Skill Standards and Tests is considered to be the reason why their mission does not include this kind of activity. There seems to be a perception gap between AHRDA and the Japanese side. According to JETRO Bangkok Office (2016), since AHRDA is a government agency under the DSD, they are also focusing on skill certification, and in the future, they will implement the DSD's skill tests for the automotive industry as an implementation agency.

Regarding the skill certification restarted by TAI, AHRDA receives a request for permission to use the machinery from TAI every time. The related training and tests are conducted solely by TAI, and AHRDA only issues permission for this request. Consumables are also brought in at TAI's expense. In addition to this, AHRDA is engaged in test operations that are regularly made for equipment maintenance. The machinery and equipment were used for the academy's activities, too. For example, a JICA expert for AHRDA utilized PLCs transferred from SCSAI in his training for sequential control skill development. Thanks to this training, the PLCs have been relatively better utilized. In fact, the JICA expert mentioned that the training he conducted for local trainees was for developing a national skill test (JICA 2017). However, when confirming with AHRDA, they replied that testing is outside their domain and their focus is on training only. Moreover, the training by the expert took five days that was longer than three days for the skill test by the DSD. According to their understanding, the training was too much for the applicants for a skill test.

Based on the information above on TAI, AHRDA, and SRISD, no substantive scaling-up could be observed regarding SCSAI. Although TAI has implemented skill certification and related training, their activities are not likely to be sustainable without specific support from a new project. One limitation of the argument in this sub-section is potential knowledge and skill spillover as 'informal scaling-up' from all types of participants in SCSAI (examiners, trainers, and all the level of trainees) to their peers and subordinates in their organizations. In terms of the size of impact, this spillover can be larger than the direct transfer from the local trainers to their trainees.

3.2. Current status of and scaling-up from other sub-projects of AHRDP

In this sub-section, the implementation and transfer status of mold and die training to TGI and management and manufacturing training to AHRDA are elaborated.

First, regarding mold and die training, three lecturers of TGI participated, and one of them still works as a trainer for TGI. TGI has not provided training for large-scale molds as in the mold and die training of AHRDP, but the TGI trainer could apply the training to TGI's smaller and medium-sized mold and die training with modifications. Moreover, 26 trainers in total developed by the mold and die training still have regular trainer meetings. Among them, eight members including the TGI trainer above are engaged in activities such as holding seminars at companies. They share problems daily in a LINE[2] group and work together to solve them. The group is considered to fulfil a certain function as a community of practice that is defined as 'a group of people informally bound together by shared expertise and passion for a joint enterprise' (Wenger and Snyder 2000). Beyond the exchanges among the members, they sometimes teach employees in their organizations, too. One reason for this relatively strong commitment by the trainers is they are limited in number, compared with SCSAI having hundreds of examiners and trainers. At the same time, TGI has supported such activities by providing their facilities. Consequently, the involvement of TGI and its trainers functioned more easily.

Among other sub-projects, this case showed a better result in terms of

[2] A popular social media application for instant messaging in Thailand.

sustainable mutual learning among the trainers. One reason is that TGI has played the role of a focal point because of the strong commitment by the trainer who has worked for TGI. He has also been supported well by the top management. The other important point is that all the trainers had the experiences of learning together, thanks to the curriculum that required them to learn all the processes in mold and die development and production, especially finishing. Beyond better communication, their comprehensive experiences may have enhanced collaborative activities, including problem-solving.

Next, the handover status of AHRDP management and manufacturing training can be investigated at AHRDA. Many of the management and manufacturing training contents have been well transferred to the AHRDA's trainings (AHRDA 2016), which is better than their application of SCSAI trainings and tests. For instance, training related to manufacturing was incorporated into the 'Super Blue Collar' training[3] that is currently conducted, thanks to the in-house trainers' extensive efforts. In that respect, it can be judged that the know-how transferred has been continuously utilized. One problem is that trainers developed by the management and manufacturing training have not been involved in AHRDA's training sustainably. Although both types of trainers—SRISD in-house trainers and those from outside—learned from the same management and manufacturing training by DENSO, there are no cases where the latter became instructors in the AHRDA training system. There were cases where trainers in the TWI training system for supervisors became trainers at SRISD after the completion of AHRDP, but this has not been seen since the establishment of AHRDA.

The long-term goal of the sub-projects was to raise the knowledge and skill levels of the whole industry, including tier-2 and tier-3 local suppliers, by disseminating what the trainers learned from AHRDP. The TGI has implemented training in a similar form. Although it has not reached the expected scale yet, we can anticipate continuous implementation in the future. The AHRDA, as the transferee of the management and manufacturing training, is less effective than TGI, especially in terms of sustainable commitment of trainers developed. However, as in the case of

[3] Its main objective is to cultivate front-line supervisors with overall management skills including self-, human resource, and organizational development based on 'blue collar' skills regarding safety, quality, and operations.

SCSAI, it is not possible to fully grasp the activities of trainers developed by the two sub-projects other than those of the counterpart organizations. The spillover effects may be occurring by the trainers.

4. Other Skill Certification Systems in Thailand: Their Relationships with SCSAI

4.1. DSD and TPQI

As mentioned in Section 1, Thailand has two standards for skill certification, namely, the skill standards of the DSD and the occupational standards of TPQI, both of which are accommodated under the Thailand National Qualification Framework (TNQF), together with general and vocational education. This is different from the national qualification frameworks (NQFs) of several European countries, Australia, and New Zealand that emphasize vocational qualifications. The TNQF focuses on competency-based work experiences, as does the NQF in the United Kingdom (Garchotechai, Tulwatana, and Naulsom 2018).

First, the DSD is responsible for the development of National Occupational Skill Standards and provides occupational skill training and testing. The curriculum is developed at a national level through the DSD, but individual providers can also develop their curricula. It is a mix of both. The system was expected to introduce competency-based standards supported by technical cooperation from the Asian Development Bank (ADB 2003). However, in implementation, their skill standards are narrower in scope than the competency-based standards (Korea World Bank Partnership Facility: KWPF 2015). As of October 2018, there were skill standards for 2,407 occupations (JTB 2020). According to the JETRO Bangkok Office (2016), a skill certification is conducted by written exam and practical tests, and in 2015, 66 tests were carried out. Most of the work was done at the lowest level 1 only, 18 tests were at level 2, and Carpenter Construction was at level 3. There are two types of skill standards: National Industrial Skill Standards (NISS) with the cooperation of the Federation of Thai Industries (FTI) and National Occupational Skill Standards solely formulated by the DSD. Regarding the division of labor, the areas that cannot be covered only by teaching staff in vocational schools and universities are taken charge of by NISS.

As a formal system, the skill standards have the potential to be utilized by the private sector as well as by educational institutions, although

skill tests need to be developed for most occupations. However, in the interviews during the author's field research, Thai companies and university professors in related fields said that the skill tests were not being utilized due to insufficient information. A TWI trainer trained under the management and manufacturing training system of AHRDP mentioned that 'the skill tests are actually at an individual operation level, and therefore it is difficult to make a selection of appropriate ones for their employees, compared to a competency-based job level framework such as TPQI's professional qualification. Many companies cannot determine which tests should be taken. That may cause a problem to permeate the entire industry.' Also, even though this TWI trainer's company is relatively active in utilizing the skill test, they will not let their employees take the highest level, Level 3. This is because the content of the skill test is too advanced and has little relevance to tasks at their workplace.

The other institution involved skill certification, TPQI, is a public organization under the supervision of the Prime Minister, and was officially established in 2011. According to KWPF (2015), TPQI is responsible for developing the national professional qualifications system, including professional qualifications and occupational standards. For this purpose, the institute supports industrial and business sectors in developing occupational standards and accredits assessment centers for the assessment of competencies and issuance of qualifications under its remit. The centers must meet the requirements of ISO/IEC 17024:2012. According to its website, the occupational standards for 59 sectors and more than 500 detailed occupations and levels have been established.

During the process of developing occupational standards and professional qualification systems, TPQI has had cooperation with international partners, such as the People 1st Sector Skill Council (UK, for tourism and transportation) and Innovation & Business Skills Australia (in areas such as business services, financial services, information, and communication technology). TPQI (2020) also engages in active cooperation with regional partners. In ASEAN, the Technical Education and Skills Development Authority (TESDA) of the Philippines is a collaborator to ensure compatibility with the standards of the automobile service industry and logistics. Together with the National Institute for Vocational Training (NIVT) in Vietnam, they aim at making occupational standards in mechatronics compatible. Both are in preparation for the ASEAN Economic Community. Moreover, they have worked with

the Information-Technology Promotion Agency (IPA), Japan, and the Ministry of Science and Technology, Thailand to create occupational standards for IT equipment repair companies. With the Human Resources Development Service of Korea (HRD Korea), they developed the process of qualification and its examination in the field of mechatronics.

JETRO Bangkok Office (2016) reported that the DSD and TPQI had decided in principle that there should be no overlap in the creation of standards in the vocational sector, which means that TPQI is supposed to develop the standards that the DSD has not yet developed. However, in practice, some of them overlap in multiple occupational fields. In fact, DSD is involved in the activities of NPQI. For example, an executive-level official of the DSD is a member of the NPQI board. The two organizations established a working group to compare the standards established by TPQI and the DSD and to establish professional standards together. Although, at present, not all the standards are distinguishable, there are two examples of a clear division of labor. One is auto parts manufacturing-related operations in the DSD and automotive repair and maintenance services in TPQI. TPQI develops professional standards for automotive service, engine repair, and underbody repair for those who work in after-sales service centers. It should be noted that this qualification does not overlap with the standards of the parts industry created under the NISS of the DSD with the cooperation of FTI. The other example is for molds and dies. Mold and die manufacturing is one of the categories of NISS with all levels 1 to 3. TPQI has created standards for the industry relating to the upper 4th to 7th levels in cooperation with the Thai Tool and Die Industry Association.

4.2. Relationship of DSD and TPQI with SCSAI

As shown in the previous sub-section, Thailand has developed its skill certification systems mainly by the activities of the DSD and TPQI. The two systems aimed to make a good division of labor and the attempt has been successful to a considerable extent, though there are some room for further coordination. Compared with the effective division of roles between the two systems, SCSAI has not created good relationships with either of them. There is particularly a concern over the link to the National Skill Standards and Tests of the DSD.

According to JETRO Bangkok Office (2016), a senior official of the DSD

stated that they believe Thai skill standards must be equivalent to international standards. For example, in the field of welding, international standards such as European, American, and ISO standards are used. The Japanese standards are too high-spec and so it seems very difficult to perform a Japanese equivalent standard certification test for Thai skilled workers. That was the main reason for the difficulty found in integrating SCSAI into the DSD system or realizing good coordination between them, though that is potentially the most effective way of scaling up SCSAI. A tip is found in the coordination of the DSD's and TPQI's systems. For the mold and die skills/competency, they share the levels as mentioned above; the lower levels by the DSD and the higher levels by TPQI. It does not seem to be possible to easily match skills and competency, but they could complete the task through careful coordination. SCSAI may take the same path to establish the division of labor within the DSD's system, for which TAI can be a major training and test implementation organization.

5. Discussion

Based on the information in the previous sections, project implementation and their deployment after the project periods are summarized for SCSAI and other sub-projects of AHRDP by utilizing the translative adaptation model (Table 6.3).

The main focus, SCSAI, was evaluated and adaptation of skills and knowledge by the Thai side was found to some extent, such as rearranging the skill test tasks of some operation types and incorporating training components. The adaptation was made mainly by the Japanese initiative, which raised the effectiveness of the project implementation at that moment but might have led to less experience of substantial decision making by local counterparts. Due to this, they might be less likely to make a sustainable adaptation when necessary, after the sub-project was completed.

More generally speaking, this donor-led adaptation is related to the development of knowledge and skills for problem finding and solving, and for continuous improvement. Ultimately, we should learn and utilize how to develop such knowledge and skills continuously by ourselves, or meta-learning to sustainably operate the translative adaptation process. In this regard, to facilitate smooth adaptation process, selecting TAI rather than the DSD was strategically an appropriate decision. However, mainly

Table 6.3. Summary of the Analysis on the Sub-Projects of AHRDP Studied

Sub-project	Learning	Adaptation	Scaling-up
SCSAI (Skill Certification and Related Training)	• Trainer/examiner by training and certification • Curriculum for training (Excluding skill standards and test questions)	• Rearranging the skill test tasks of three operations • Incorporated training into the system	• Both skill tests and training have not been reflected in the skill tests by the DSD • Spillover in the trainers' own organization?
Mold & Die Training	• Trainer • Curriculum (1,000t class)	• Curriculum development for medium and small types additionally	• Forming a community of practice? • Spillover in the trainers' own organization?
Management and Manufacturing Training	• Trainer (none in AHRDA) • Curriculum	• Included the case of King Bhumibol	• Reflected into 'Super Blue Collar' Training • Spillover in the trainers' own organization?

Source: The author.

due to resource constraints, TAI could not exploit the learning opportunity fully and develop their staff for sustainable adaptations as well as achieve the scaling-up as anticipated.

The specific features during the adaptation stage might have influenced the scaling-up stage. No substantial scaling-up was observed for SCSAI. In fact, compared with other sub-projects, scaling-up is more difficult for SCSAI. This is because the DSD had already established skill standards and tests at the time of starting SCSAI, although the DSD's system had not satisfied the needs of the automotive industry then. Therefore, different from the stage of adaptation, SCSAI had no green-field conditions. More seriously, due to the gap in terms of the skill level required, simple integration was not promising. However, as discussed earlier, the DSD succeeded in cooperating with TPQI to coordinate the two systems in some cases. Although this cooperation was possible because TPQI is under the Prime Minister's Office, it was harder between two ministries having a more horizontal relationship.

Other sub-projects have achieved some kind of scaling-up but not to their full potential, but rather being limited within the range of the specific direction of expansion opportunities. In the case of both 'mold and die

training' and 'management and manufacturing training,' the expected full-scale may mean at least frequent training by the trainers and its development by the sub-projects inside and outside the counterpart organizations. The current level does not reach this scale, unfortunately. However, even if such scaling-up cannot be realized, the author wants to emphasize that a community of practice is formed among the trainers developed by the mold and die training system. This is indispensable as a social infrastructure that makes the overall skill development system more effective, as in the case of Japan.

6. Conclusion

This chapter investigated the translative adaptation process of SCSAI, which is a sub-project of AHRDP supported by Japan aimed at developing a skill certification system including skill development training to satisfy the high level of requirements for the Thai automotive industry to attain sustainable international competitiveness. According to the analysis, although Japanese experts had the initiative from the process of adjusting the Japanese system, TAI staff did achieve some degree of translative adaption. That was possible especially because the sub-project consists of skill tests as well as skill development and so needed to cover a broader and different scope of activities compared with the other sub-projects of AHRDP that focused solely on skill development. However, scaling-up cannot be observed in either the counterpart organizations or with the National Skill Standards and Tests. Compared with the other sub-projects of AHRDP focusing on skill development, their performance has not been superior.

The present study has persuasively argued in the discussion of the project case from the perspectives of the translative adaptation model. But there are suggestions for further areas of research. First, primary data was collected mostly on the recent status of the projects. Although the reports by the experts supply rich and detailed information on their candid views, particularly on SCSAI, it was found better to collect information on what happened during the project period from the former Japanese experts, the members of the steering committee and technical committees, and lecturers who developed the Thai version of the learning material.

Second, a sample survey of local trainers may be effective to grasp the spillover effects from the trainers to their organizations or anywhere

else other than the counterpart organizations. Finally, comparison with other sub-projects of AHRDP was fruitful with regard to the process of formulating a skill development system, but a similar kind of comparison was not made with the DSD and TPQI in terms of the process of establishing a skill certification system, as the information regarding translative adaptation was not obtained. Future studies can clarify the process better by paying attention to these points.

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CHAPTER

7

The Translative Adaptation Process in a Local Skills Development Initiative: The Case of Dong Nai Manufacturing Human Resources Development Project

Makoto Ryoke and Junichi Mori

1. Introduction

This chapter examines the relationship between development cooperation implemented in a 'hands-on' approach and translative adaptation. It is based on the case of a skills development project which was led by local governments, technical and vocational education and training (TVET) institutions, and other Vietnamese and Japanese stakeholders.

It is said that Japan's international development cooperation has contributed to economic development in a way that suits the situation of each country through policy learning and the translative adaptation of foreign models based on an analysis of the characteristics of each country's economy, society, and systems (Ohno 1998, 12). In addition, this type of development cooperation is associated with a hands-on approach, which respects the historical and cultural backgrounds of the partner country, flexibly determines the goals and processes to achieve them, and encourages initiatives developed by the recipient countries of Official Development Assistance (ODA) (see Chapter 2).

However, there are few studies on how development cooperation projects in a hands-on approach can promote translative adaptation, in particular in skills development projects that have to deal with diverse regional skills needs even in a single country (Mori and Stroud 2021). Therefore, this chapter attempts to analyze key elements of the hands-on approach that may prompt translative adaptation, studying the case of the Manufacturing Human Resources Development Project in Dong Nai Province in Vietnam (hereafter called the Dong Nai MHRD Project). This project is unique given that it involves full ownership transfer from the donor to an ODA recipient. It started as a development cooperation project supported by Japanese government agencies but became a fully

funded Vietnamese local government project.

Based on the information and knowledge obtained by the authors, who worked as project experts, and the qualitative data from field interviews, this chapter examines the challenges and solutions in the project implementation process and the impact of the hands-on approach on the promotion of the translative adaptation process.

2. Literature Review for the Analytical Framework Development

As mentioned in Chapter 2, the translative adaptation process comprises three steps: (i) learning; (ii) adaption or internalization; and (iii) scaling-up. This process has been used when Japan was absorbing foreign knowledge and technologies. In particular, Japanese manufacturing firms have utilized the internalization process when adapting other country's technologies to their own. In addition, they have skillfully absorbed tacit knowledge in adapting advanced knowledge and technologies.

Knowledge creation theory explains the processes of mutual conversion between tacit knowledge and explicit knowledge (Nonaka and Hirose-Nishihara 2018). Its SECI model divides the processes into four interactive steps: (i) empathizing reality through actual experiences (Socialization); (ii) articulating the essence of awareness into concepts (Externalization); (iii) relating and systemizing the concept (Combination); and (iv) creating value in the form of technology, product, software, services, and experiences, and embodying knowledge (Internalization) (Nonaka and Hirose-Nishihara 2018, 6-7).

Table 7.1 records our comparison of the translative adaptation and the knowledge creation processes. Since translative adaptation assumes internalization of foreign models, recipients of foreign models must complete the knowledge creation process through which they convert tacit knowledge to explicit knowledge. The knowledge creation process is not necessary if, as in the normative approach, what is already explicit knowledge is used as is.[1] In contrast, the knowledge creation process is

[1] The normative approach in this volume focuses on disseminating international best practices formed in developed counties as norms. See Chapter 2 or Steiner-Khamsi (2014).

Table 7.1. Comparison of Translative Adaptation and Knowledge Creation Processes

Translative adaptation process	Knowledge creation process
Learning stage • Collecting knowledge of relevant policies and practices of other countries, in light of development priorities (policy options) • Analyzing both merits and demerits of each policy option	• Clarification of target tacit knowledge
Adaptation/internalization stage • Selecting policies to adopt from long-run viewpoints (strategic decision-making) • Examining adaptability and validity of introduced policies and technology (e.g., pilot projects) • Adjusting selected policies in accordance with economic, social, cultural, and institutional contexts of each country (recontextualization)	Socialization • Share direct experience and generate tacit knowledge (shared views)
	Externalization • Convert tacit knowledge to metaphor, image, or hypothesis through dialogues (conceptualization)
	Combination • Organize relevant concepts into prototype, a model, or a narrative (systematization)
	Internalization • Embody explicit knowledge by exploring the model narrative in thorough and action (implementation)
Scaling-up stage • Establishing institutions and necessary incentive systems for scaling-up. • Expanding policy application inside countries. • Disseminating translated models to other countries as a policy option.	

Source: Drafted by the authors based on Nonaka and Hirose-Nishihara (2018, 8) and Ohno (2024, 10).

essential for technical cooperation in a hands-on approach which aims to assist counterparts to develop the models based on their contexts.

In addition, the process of 'import replacement or substitution,' explained by Jacobs (1984, 35), may help us understand the process of translative adaptation and the relationship with the hands-on approach, if 'products' in the literature are replaced by 'policies.' The literature regards the ability of import replacement as one of the conditions for the development of a region. Cities produce products imported from other areas in their territory using their own technology and resources and consume the products thus produced. By repeating these processes, the cities soon start to export

the products, see its citizens earn more income, and eventually flourish. Jacobs (1984, 140) says, 'Development is a do-it-yourself process; for any economy it is either do it yourself or don't develop.' Referring to policy for attracting factories to provincial areas and developing countries, she also asserts, 'salvation from transplants is a vain hope for most regions avid to get them as a solution to unemployment' (Jacobs 1984, 102-03).

Jacobs (1984) divides import replacement into three phases: (i) in the import phase, advanced countries' technology and know-how are introduced; (ii) in the replacement phase, improvisations, such as small improvements and ingenious devices at the worksite level occur, prompting adaptation to internal production; and (iii) in the development phase, innovations are brought about, and production goods and services thus produced are applied to other sectors.

Based on the linkages between the three theoretical models explained above, namely translative adaptation, knowledge creation, and import replacement, this chapter analyzes the development processes of the Dong Nai MHRD Project by paying attention to the three steps of the translative adaptation process and examines challenges and responses of the project counterparts in reference to the knowledge creation and import replacement theories.

3. Background of the Project Formulation

The Project was formulated based on the needs of both the Vietnamese and Japanese sides. The Vietnamese government has been attempting to develop supporting industries, including suppliers of materials, parts, and equipment to assemblers (see Mori 2019). An increasing number of Japanese suppliers, mostly small and medium size enterprises (SMEs), consider Vietnam to be an investment destination due to the abundance of quality workers and the shift of their customers to Vietnam. Japanese national and local governments have also been promoting SME overseas investment. As a result, the development of manufacturing human resources, such as skilled production line operators and technicians has become a key issue for both sides. While Vietnam needs to increase the supply of skilled workers to attract more foreign direct investment (FDI) from Japanese supporting industries, Japanese suppliers must secure a sufficient number of skilled workers in order to improve productivity and quality.

3.1. Supporting industry development and Japanese FDI

3.1.1. Supporting industry development for Vietnam's industrialization

The Vietnamese government has been paying increasing attention to the development of supporting industries as a driver for industrialization (Mori 2019). In its Socio-economic Development Strategy 2011-2020, it identified industrialization as its overarching goal and viewed the establishment of a socialism-oriented market economy system, development of transport and urban infrastructure, and training of human resources as its three priority issues. Regarding the third priority, the national goal was to expand the scale of vocational training (Government of Vietnam 2011).

The Vietnamese government has also issued policies for supporting industry development, such as the supporting industry development master plan (MOIT 2014). In order to develop supporting industries, it is necessary to promote technology transfer from advanced countries and develop skilled workers who can absorb these technologies. According to the direction of the national policies, some local governments have been trying to develop supporting industries by promoting FDI from developed countries, including Japan (Mori 2019).

The government of Dong Nai province in south Vietnam, where the project was implemented, is one of these active local governments. In April 2013, the Dong Nai People's Committee (the Dong Nai provincial government) entered into a cooperation agreement with the Kinki Bureau of Economy, Trade and Industry to promote economic development in the Kansai region and Vietnam (METI-KANSAI 2023).[2] The agreement was made based on the previous cooperation between industrial zones in the Dong Nai province and Japanese partners, including the Osaka prefectural government and economic organizations of the Kansai region, for the development of supporting industries through the promotion of investment from Japanese companies in the Kansai region. Towards the implementation of the agreement, the development of *Monozukuri* (manufacturing) human resources was a key issue, since many Japanese companies which have been operating in the province had reported the lack of skilled workers as a main challenge (METI-KANSAI 2013).

[2] The 'Kansai region' covered by METI KANSAI includes seven prefectures, namely Fukui, Shiga, Kyoto, Osaka, Hyogo, Nara, and Wakayama Prefectures) (METI-KANSAI 2014).

3.1.2. Challenges of Japanese SMEs in Vietnam

Japanese SMEs, which are an important part of supporting industries, have been increasing their overseas investment (Ohno 2013). This is not only because their clients, which are often large companies, are shifting their factories overseas but also because it is becoming more difficult for SMEs to secure human resources due to the decreasing interest in manufacturing among youths and the declining youth population (Ryoke 2013).

Therefore, many SMEs have been investing in Vietnam where the youth population is still large and diligent low-wage workers are abundant, in order to secure a sufficient number of workers. However, many of them face challenges, such as frequent job-hopping and a lack of skilled workers, such as engineers, technicians, and production line leaders.

This situation also applies to SMEs from the Kansai region. According to a study conducted by the Kansai Bureau of the Economy, Trade and Industry, many of the companies surveyed indicated challenges in developing and retaining local managerial personnel and retaining local workers and encouraging them to become part of teams after they advanced into Vietnam (METI-KANSAI 2013) (see Table 7.2).

The study also found the efforts made by Japanese SMEs for securing skilled workers and their recruitment practices. Prior to the establishment of factories in Vietnam, some Japanese SMEs trained Vietnamese workers in Japan. Some of those workers were recruited under technical internship training programs.[3] Others studied in Japan and were recruited for managerial posts. After advancing into Asia, they tend to focus on recruiting senior managers or professional staff members who work for general affairs departments through staff placement services, and then recruit production line workers through advertisements on factory bulletin boards and introductions by employees.

Nonetheless, the study reported various challenges related to human resource management faced by SMEs from the Kansai region. Many of them suffer from high turnover rates or worker job-hopping. The study also expected future challenges in training production line leaders or

[3] See MLHW (2023).

Table 7.2. Changes in Important Issues Before, When, and After SMEs Advanced into Vietnam

Rank	Before advancing into Vietnam	%	When advancing into Vietnam	%	After advancing into Vietnam	%
1	Market characteristics and consumer needs	22.1	Investment restrictions and environmental and other regulations	11.8	Developing and retaining local managerial personnel	17.6
2	Local labor management, labor situation, etc.	13.0	Discovery of contractors to which production is outsourced, business partners, etc.	9.0	Securing local workers or similar and encouraging them to become part of teams	11.8
3	Local taxation systems, regulations, preferential treatment for investors, etc.	12.6	Developing and retaining local managerial personnel	7.3	Securing and discovering suppliers of equipment and materials	7.3
4	Discovery of contractors to which production is outsourced, business partners, etc.	8.4	Procedures for trade and customs clearance	6.9	Unexpected cost increases after advancing into Vietnam	4.6
5	Specific examples of companies operating in Asian emerging economies, etc.	7.6	Securing and discovering suppliers of equipment and materials	6.5	Countermeasures for intellectual property such as those against the drainage of know-how and imitation	3.4
6	Securing and discovering suppliers of equipment and materials	4.6	Securing local workers or similar and encouraging them to become part of teams	6.5	Discovery of contractors to which production is outsourced, business partners, etc.	3.4
7	Investment restrictions and environmental and other regulations	3.8	Local taxation systems, regulations, preferential treatment for investors, etc.	4.2	Local labor management, labor situation, etc.	3.1
8	Developing and retaining local managerial personnel	1.5	Local labor management, labor situation, etc.	2.7	Market characteristics and consumer needs	1.5
9	Procedures for trade and customs clearance	1.1	Tax-related procedures	2.7	Investment restrictions and environmental and other regulations	1.5
10	Securing local workers or similar and encouraging them to become part of teams	0.8	Unexpected cost increases after advancing into Vietnam	2.3	Tax-related procedures	1.5

Source: Translated by the authors based on METI-KANSAI (2013, 84).

supervisors, embedding Japanese-style production management systems, and transferring technologies from Japan to overseas factories.

3.2. Skills needs of Japanese-affiliated companies in Dong Nai

This section explores skills needs of Japanese-affiliated companies (hereafter called Japanese companies), in particular SMEs in Dong Nai province, based on the results of the field interviews conducted by Japanese experts during the inception phase of the Dong Nai MHRD Project.[4] This rapid study aimed to examine how Japanese companies are securing and training human resources and the present situation of educational institutions through interviews with 11 Japanese companies and two industrial zone management firms, as well as Vietnamese staff working in these companies.

3.2.1. Skills and training needs

The study found that interviewed Japanese companies face skills shortages. In particular, they reported a shortage of managers. They are also experiencing shortages of intermediate workers, such supervisors, skilled technicians, and skilled workers, such as operators of conventional turning, milling, and welders, probably because many of the interviewed firms are parts suppliers.[5] On the other hand, they reported that it was easier to recruit production line operators through advertisements posted on websites and bulletin boards in front of factories.

Furthermore, the interview results indicated that Japanese companies prefer experienced workers rather than fresh graduates of universities or TVET institutions. Since many interviewed companies have just started operations, it can be inferred that they lack the time needed to train unskilled workers. In particular, they indicated high demand for administrative staff who can speak Japanese and production site workers who have obtained relevant experience through working for other companies in Vietnam or technical internships in Japan.

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4 The primary author of this chapter participated in this study.

5 This is because most interviewed companies are parts suppliers which tend to require more skilled workers at the intermediate occupation levels, such as technicians. Also, there is a certain level of agglomeration of supporting industries in Dong Nai province. The high demand for skilled workers, in particular intermediate workers, does not necessarily apply to all regions in Vietnam (Mori 2021).

Interviewed firms indicated skills gaps for basic skills and they anticipated education and training institutions would strengthen training of these skills. Basic skills include 5S, *Kaizen*, safety, *Ho-Ren-So* (Japanese term which means timely reporting to and consultation with supervisors).[6] They also indicated training needs for simple Japanese terms related machinery operation, such as the meaning of safety-related colors and the basic terms 'upper, lower, left, and right' and rules. In fact, the lack of those skills among new graduates are making Japanese companies prefer to recruit experienced workers. One interviewee from a Japanese company stated they cannot allow new graduates (who do not have basic knowledge of 5S and safety) to work in the production side immediately since tremendous trouble will be caused if they are injured and they do not have enough time to train them in such basic skills.

The above findings were reconfirmed through interviews with partnering TVET institutions of the Dong Nai MHRD Project and their graduates working for Japanese companies. Some graduates said that since school education focused on acquiring knowledge, they needed to be re-trained to acquire practical skills after they entered a company. They also pointed out that schools did not have up-to-date machinery and equipment. Furthermore, a graduate from a Japanese-language department reported that they did not have sufficient language proficiency to communicate with Japanese staff due to lack of exercise in a school.[7]

3.2.2. Technical cooperation needs

Based on the results of the above study, the technical cooperation needs for the Dong Nai MHRD Project were identified. First, the study found high demand for technicians and production line leaders, indicating a need to train technicians. Due to high job turnover among Japanese companies, it

[6] The 5S approach consists of: (i) sorting; (ii) setting in order; (iii) shining; (iv) standardizing; and (v) sustaining (JICA 2018). It is widely recognized by enterprises as a useful means to improve productivity and work environments. The core value of *Kaizen* is placed in creating an attitude shared among all members of an organization who consistently pursue advanced levels of quality and productivity, and not just applying its management method. *Kaizen* is a comprehensive system that consists of broad technologies such as 5S, 7 Quality Control (QC) tools, Total Quality Management (TQM), Toyota Production System (TPS), Lean Production System, etc. to pursue activities under this core value. See JICA (2018).

[7] The Project attempted to introduce Japanese terms used at the worksite into the curriculum. However, it faced many challenges, including securing qualified teachers. As a result, the project's intervention focused on 5S and safety.

is necessary for the project to encourage students to continue to develop their skills and pursue long-term careers in the manufacturing sector. To achieve this, it was assumed that *Kosen*, which is the combination of theoretical and practical training practiced in Japanese technical colleges, would help students learn the meaning and value of pursuing a long-term career as practical engineers or technicians in the manufacturing sector.[8]

Second, the Japanese companies require workers to possess workplace management knowledge and skills, such as 5S and safety. The interview results indicated the need to train manufacturing human resources who have basic workplace abilities. In this chapter, basic workplace abilities comprise a set of fundamental skills required for workers at production sites, such as 5S, workplace safety, communication skills, and knowledge of basic technical terms. As mentioned above, lack of those abilities discourages companies from hiring new graduates. However, in Vietnam, it seems that little education on keeping things tidy and in order is provided at home in childhood. Furthermore, it was hard to find TVET or higher education institutions in the province which carry out effective curricula for the improvement of 5S and safety.[9]

Finally, internship programs should be more effective in terms of training and a win-win method for both students and employers. Internships were considered being more effective if students could improve basic workplace abilities, such as 5S and safety and obtain better employment opportunities in Japanese companies requiring those skills. However, various issues were identified to help improve internships provided by TVET institutions. Some interviewed Japanese SMEs which were active in developing human resources welcome internships as an effective system for identifying motivated students. Nonetheless, others reported some challenges, such as: (i) unclear working conditions; (ii) difficulty in dealing with requests made by different schools; and (iii) the fact that some students end up finding employment at other companies after completing their internships. These issues must be addressed through cooperation between TVET institutions and companies. However, the relationship between them was found to be very weak, making cooperation a challenge.

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[8] See Section 4.1.2 for further details of Japanese technical colleges, *Kosen*. Also, one of the Japanese project experts was a professor at a technical college in Osaka, Osaka Prefectural University College of Technology.

[9] There are some TVET institutions in other regions of Vietnam that have started providing students with training in those skills (JICA 2014b).

Thus, the Dong Nai MHRD Project decided to enhance the coordination function of a relevant government agency, the Dong Nai Industrial Zone Authority (DIZA), a Vietnamese counterpart, for facilitating partnerships between TVET institutions and Japanese SMEs.

4. Overview of the Dong Nai Manufacturing Human Resources Development Project in Vietnam

4.1. Project design and relevant experience in Japan

4.1.1. Designing the project

For the reasons explained in the previous section, the Dong Nai MHRD Project was formulated to ensure that Japanese-affiliated manufacturing SMEs operating in Dong Nai province secure and retain skilled workers who graduate from local education and training institutions. Furthermore, the development objective of the Dong Nai MHRD Project was to contribute to Vietnam's industrialization through the development of supporting industries.

The Vietnamese counterparts consisted of a local government agency and TVET institutions. The leading counterpart of the Dong Nai MHRD Project was DIZA, which has been playing a key role to attract FDI from Japanese companies to the province. The other counterparts were two education and training institutions, namely the Long Thanh-Nhung Trach Vocational College, which was renamed Dong Nai College of High Technology (DCoHT) later, and Lac Hong University (LHU). These two institutions were recommended by DIZA as candidates for 'model' TVET institutions that are supposed to develop and implement training programs in accordance with skills needs of Japanese companies in the province.[10]

The Dong Nai MHRD Project had two original outputs: (i) the establishment of a system that enabled the province's TVET institutions to develop and continuously improve training programs that meet the needs of Japanese companies; and (ii) the development of DIZA's capacity to facilitate partnerships between TVET institutions and Japanese SMEs.

[10] Lac Hong University (LHU) provides a university course but also a vocational college course. Therefore, this chapter categorizes LHU as a TVET institution, although it is also a higher education institution.

However, these outputs are refined through the field interview described in Section 3.2 and discussion with Vietnamese counterparts, as described in Section 4.2.

The implementation modality of the Dong Nai MHRD Project was: (i) the dispatch of Japanese experts to Dong Nai province who provided the Vietnamese counterparts with technical guidance through workshops and meetings; (ii) training sessions organized in Japan, each of which was around one to two weeks; and (iii) on-line consultation and meetings through which both sides monitored the progress of activities and output delivery periodically.

4.1.2. Japanese experience with manufacturing human resources development

The Dong Nai MHRD Project was designed in reference to Japanese experience in manufacturing human resource development, in particular the following system and initiative.

4.1.2.1. Technical colleges and industrial high schools in the industrialization of Japan

The Dong Nai MHRD Project aimed to transfer teaching methods and other knowledge from technical colleges (*Kosen*) and industrial high schools through two experts who have long experience in teaching in these types of institutions in Osaka. Those two types of TVET institutions were developed in order to address the shortage of skilled workers.

In Japan, technical colleges were established in the postwar period when Japan strove to recover from the devastation and chaos after World War II and achieve rapid economic growth. Technical colleges were legally established in 1961, when the lack of engineers came to light. Establishing education and training institutions to train engineers was becoming an urgent issue as the country's industrial advancement due to the income-doubling plan advocated by the administration of Hayato Ikeda, the sixtieth Prime Minister. Thus, the industrial community put forward a request for a school system to supply leading engineers by providing substantial practical training and offering specialized subjects. In 1962, 12 national technical colleges were opened.

The first batch of students graduated and entered the labor market

in March 1967. Since then, regardless of the increase in the number of technical colleges established and economic performance, these colleges have achieved a nearly 100 per cent employment rate for graduates who are working in firms as engineers or technicians mainly in production sites. In short, they have gradually developed their trust with industry and now they are recognized as a source of practical engineers by industry (Gekkan Kosen 2020; National Institute of Technology 2012). Similarly, industrial high schools have been training human resources who serve as technicians supporting experienced engineers and supervisors at worksites since the postwar period of rapid economic growth. The skills and knowledge accumulated in the above two types of institutions are considered relevant to current Vietnam. Since manufacturing companies in Vietnam lack intermediate workers, it is necessary to increase the supply of technicians and supervisors in order to achieve industrialization. In particular, the Dong Nai MHRD Project decided to encourage partnering TVET institutions to develop training programs for 5S and safety by comprising theory and practice, referring to the teaching method of Japanese technical colleges.

4.1.2.2. The regional project to develop local industry leaders: Craftsmen 21

The Dong Nai MHRD Project referred to the experience of the Project to Develop Supporters of Local Industries, entitled 'Craftsmen 21,' for the development of an institutional mechanism to facilitate the partnership between TVET institutions and Japanese SMEs. The 'Craftsmen 21' project was implemented in Osaka from 2007 to 2010 to develop manufacturing human resources through partnerships between technical high schools and local industry.

The project was supported by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Ministry of Economy, Trade and Industry (METI). The project was carried out with four schools run by the Osaka prefectural government: (i) Imamiya Technical High School; (ii) Jyoto Technical High School; (iii) Fuse Technical High School; and (iv) Sakai Technical High School. The project was implemented by the Osaka Labor Association, in cooperation with the Osaka Prefectural Board of Education and the Department of Commerce, Industry, and Labor of the Osaka Prefectural Government.

Many manufacturing SMEs are concentrated in Osaka, but most technical

high school graduates in Osaka are recruited by large companies or medium-sized companies who recruit graduates from these schools every year. Few of the graduates joined local SMEs, in part because they do not recruit new employees regularly. Accordingly, the partnerships between technical high schools and local SMEs are weak.

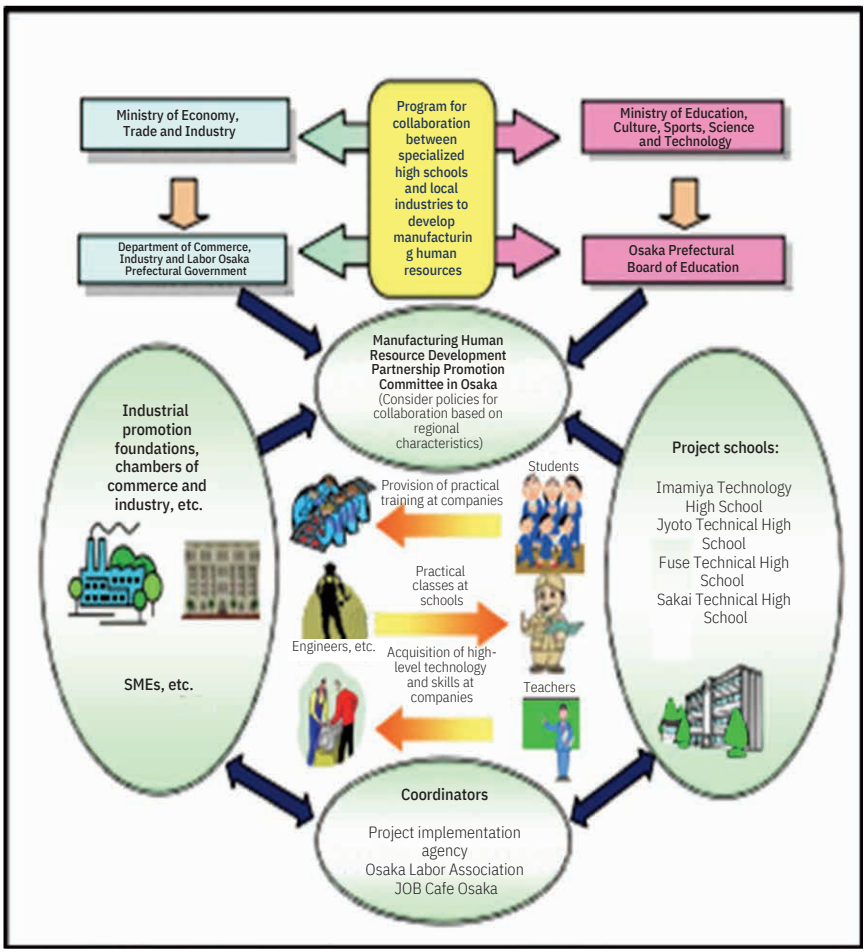
In order to develop manufacturing human resources to work in local industries, the project established a consortium called the Manufacturing Human Resource Development Partnership Promotion Committee' in Osaka, consisting of representatives from local manufacturers and four technical schools. The committee facilitated the introduction of practical education into technical high schools by: (i) promoting work-based learning in enterprises and joint research; and (ii) providing teachers and students with more opportunities to learn excellent technologies and skills needed by local industries (see Figure 7.1).

Furthermore, the project developed training programs for the development of manufacturing human resources with practical skills. It also developed teaching materials, including a manual for introducing manufacturing human resource development programs and a manufacturing human resource development case book and distributed these teaching materials to manufacturing companies and technical high schools. In order to sustain the project's results, it assisted each of four technical high schools in establishing their own compositum with local SMEs before its completion.

In reference to this initiative in Osaka, the Dong Nai MHRD Project aimed to establish a consortium consisting of Japanese SMEs and partnering TVET institutions. This consortium in Dong Nai province was expected to promote partnerships among constituents and provide TVET institutions with opportunities for determining industry skills needs.

4.2. Implementation of the project

The Dong Nai MHRD Project, which took place from 2014 to 2022, is unique since it started as an ODA project (Phase I) but later became financed by the Dong Nai provincial government (Phase II). Phase I of the project focused on the development and implementation of 5S and workplace safety training programs at two model TVET institutions, DCoHT and LHU, and the establishment of a consortium between two



Source: Translated by the authors based on MEXT (2007, 1).

Figure 7.1. Osaka Prefecture's Development of Next Generation Leaders through Organic Partnerships with Local Industries

institutions and Japanese manufacturing SMEs facilitated by DIZA. In Phase II, two model TVET institutions, whose capacities were developed Phase I, transferred their knowledge and experiences to two new TVET institutions through partnerships facilitated by DIZA. In other words, Phase I of the project went through the learning and adaptation stages of the translative adaptation process, while the project conducted scaling-up and dissemination in Phase II (see Chapter 2).

4.2.1. Phase I: ODA projects

4.2.1.1. Project overview

In the early stage of Phase I, the two original project outputs indicated in Section 4.1.1 were expanded to three based on the results of the field interview described in Section 3.2 and discussion with Vietnamese counterparts as follows: (i) the development of manufacturing human resources who have basic workplace abilities through the development and implementation of an enhanced training course for workplace safety; (ii) the development of manufacturing human resources who aspire to pursue careers in Japanese manufacturing companies through the development and implementation of 5S training courses and the capacity development of lecturers at two model TVET institutions; and (iii) the establishment of a consortium, as an institutional mechanism for sustainable partnerships between TVET institutions and Japanese companies, and the capacity development of DIZA as a coordinator of the consortium (see Table 7.3).

Phase I consisted of two consecutive projects supported by different

Table 7.3. Project Outputs and Key Activities

Output	Key activity
1. Development of manufacturing human resources who have basic workplace skills	• Develop and implement a curriculum for a training course which provides practical knowledge and skills to implement workplace safety, in order to increase employment opportunities for students of model TVET institutions.
2. Development of manufacturing human resources who aspire to pursue careers in Japanese manufacturing companies	• Develop and implement 5S training courses with sufficient practical lessons. • Develop the capacity of lecturers at model TVET institutions to conduct practical lessons effectively by motivating students to develop manufacturing sector careers. • Develop training of trainers (ToT) programs to promote mutual learning of lecturers and scale up project results at model TVET institutions.
3. Development of an institutional mechanism for sustainable partnerships between TVET institutions and Japanese manufacturing companies	• Develop a consortium as a system which enables TVET institutions to continuously improve curricula by obtaining industry feedback and develop partnerships with Japanese SMEs. • Develop the capacity of DIZA to coordinate partnerships between TVET institutions and Japanese manufacturing companies.

Source: Drafted by the authors.

Japanese government agencies. The first project was conducted under the JICA Partnership Program from July 2014 to March 2017 (JICA 2014a; PREX 2018). The second project was conducted under a METI scheme of the entitled Technical Cooperation Utilization Type/Emerging Market Development Program, from May 2017 to March 2018 (through the Association of Overseas Technical Cooperation and Sustainable Partnerships: AOTS).[11] The first project covered the development and implementation of the new course on 5S and safety. The second project focused on the evaluation of the courses and the development of action plans to improve course quality and expand it beyond pilot faculties in two TVET institutions. In this sense, the first project focused on the 'Plan and Do' stage of the training process management process described in Chapter 2, while the second project went through the 'Check and Act' stage.

While the two projects were funded by different organizations, the same implementation structure was maintained. The first project under the JICA Partnership Program was implemented by the Osaka prefectural government (as a proposer) and the Pacific Resource Exchange Center (PREX) (as an implementing agent), in cooperation with the Kansai Bureau of Economy, Trade and Industry (METI-KANSAI) and the Kinki Regional SME Overseas Development Support Conference established by the Bureau. The leading Vietnamese counterpart was DIZA. The implementation structure of the second project commissioned by METI/AOTS is almost the same as the first project, except for the exclusion of the Osaka prefectural government.[12] The structure of main implementation team is described in Table 7.4.

4.2.1.2. Characteristics of 5S and safety courses

In Phase I, the Dong Nai MHRD Project delivered five key outputs: (i) the development and implementation of 5S and safety courses at two model TVET institutions; (ii) the development of lecturers' capacities for carrying out these courses with practical lessons; (iii) the establishment of safety experience rooms at two TVET institutions; (iv) the development of training of trainers (ToT) programs at two TVET institutions; and (v) the establishment of the Project Promotion Committee, which consists

[11] See METI KANSAI (2017).

[12] However, an official of the Osaka prefectural government continued to work as a project expert.

Table 7.4. Implementation Structure of the Phase I Project

Country	Details
Vietnam	DIZA: Deputy director, manager, and staff [Model TVET institutions] • DCoHT: Rector and a total of eight lecturers (two core teachers) • LHU: Vice Rector and a total of eight lecturers (four core teachers)
Japan	[Implementing agent] PREX (Two main staff members) [Four experts] • Professor from Osaka Prefectural University College of Technology • Part-time lecturer (former teacher) from technical high school in Osaka* • Former JICA expert for the Project for Human Resource Development of Technicians at the Hanoi University of Industry (HaUI) (secondary author) • Osaka prefectural government official (primary author)

Note: *In the second project commissioned by METI, a part-time lecturer at a technical high school in Osaka was excluded from the expert team for personal reasons.
Source: Drafted by the authors.

of Japanese manufacturing SMEs, two TVET institutions, and DIZA (see Table 7.5). To deliver these outputs, technical cooperation was provided through training in Japan and on-site technical guidance was provided by Japanese experts who went to Dong Nai for one to two weeks missions.

The 5S and safety courses developed through the project have the following characteristics: (i) stand-alone courses for new students; (ii) practice orientation with hand-made tools; (iii) constant interaction between lecturers and students; and (iv) standardization with lesson plans. First, the 5S and safety courses were developed as stand-alone regular courses, not as part of other courses, ad-hoc courses, or extra-curricular activities. For example, Hanoi University of Industry (HaUI) has also been providing 5S training, but as an extra-curricular activity (see JICA 2014b). In contrast, two model TVET institutions decided to establish new 5S and safety courses, after examining another option to integrate 5S and safety into existing courses. Regarding DCoHT, the Rector expressed enthusiasm for and commitment to establish a new 5S course, integrating some modules for safety, as part of introductory subjects for all new students. They also took advantage of the autonomy recently given by the government to develop and approve a new course by themselves (see Mori and Stroud 2022). In the case of LHU, they developed a new 5S and safety course as value added to a set of existing courses for soft skills development. Two TVET institutions set up the course in different way. While DCoHT developed one course for 5S and electric and machine

Table 7.5. Main Results and Technical Cooperation of the Phase I Project

Item	Details
Main results	• 5S and safety courses were developed and implemented at two model TVET institutions. • The capacity of lecturers to carry out the courses was developed. • Safety experience rooms were established according to the design made by lecturers. • ToT programs for two model TVET institutions were developed and implemented. • The Project Promotion Committee was convened four times, and opinions were exchanged between Japanese manufacturing companies and Vietnamese counterparts.
Technical cooperation	• Training in Japan (three sessions): Visits to companies, training by experts in 5S and safety, and visits to and training at universities, technical colleges, and technical high schools. • Technical guidance provided in Dong Nai (seven sessions) for: (i) the development and implementation of curriculum for 5S and safety courses; (ii) the development and implementation of ToT programs, including trial lessons and others; (iii) the establishment of safety experience rooms, including equipment and other facilities; and (iv) the establishment and organization of a Project Promotion Committee.

Source: Drafted by the authors.

safety, LHU developed two separate courses for 5S and safety.[13]

Second, these new courses consist of many practical lessons and exercises. This is based on technical guidance from Japanese experts who stressed that it is difficult to maintain the attention and interest of students who do not have working experience in these sorts of practical courses if the majority of the class time is a theoretical lecture in classroom. Therefore, each module includes practical lessons or exercises, such as a game to assemble LEGO cars with a group, which is part of similar courses in some Japanese enterprises and universities (see Table 7.6).[14] In addition, students were required to submit a proposal to improve 5S and safety in classrooms or workshops or implement 5S in selected workshops at the

[13] DCoHT integrated selected elements of safety to the 5S course, in part because they have another mandatory occupational safety and health course for public vocational training colleges, according to the guidance form the Ministry of Labour, Invalids, and Social Affairs.

[14] Lecturers at two TVET institutions learned the basics of LEGO game at Osaka Institute of Technologies and elaborated them together with Japanese project experts in local contexts.

Table 7.6. Curriculum Outline of 5S Course in DCoHT

Module Name	Main Contents	Hour
1. Basic Concept of 3S/5S	• Introduction of the 3S/5S concept and actual 3S implementation cases in enterprises through a DVD show. • Interactive lecture about the basic concept of 3S with presentation of the cases for which 3S can be applied in classrooms and enterprises (with photos). 【Practice】 Learning the basics of 5S by assembling a LEGO automobile.	4.5
2. Exercising 3S in Workshops (*Kaizen* Activities)	• Carrying out *kaizen* activities in selected workshops by utilizing 3S methods. 【Practice】 Identifying problems by utilizing 3S methods; drafting and implementing action plans; and presenting the results of *kaizen* activities in Module 6.	6.0
3. Basics of Electric Safety	• Overview of electrical accidents and preventive measures. • Proper ways to use a tester. 【Practice】 Experiencing the risks of electrification by using an electrification simulator in the safety experience room and learning preventive measures and how to use necessary safety equipment. Learning proper ways to use ladders in electrical installations.	2.0
4. Basics of Machine Safety	• Overview of machine-related accidents and preventive measures. 【Practice】 Experiencing the risks of machine-related accidents by using a tool-dropping simulator and a rolling simulator in the safety experience room and learning preventive measures and how to use necessary safety equipment.	2.0
5. Basics of Chemical Safety	• Overview of accidents in chemical laboratories and preventive measures.	1.5
6. Presentation of 3S *Kaizen* Results	• Group presentations about the results of *kaizen* activities by applying 3S methods. • Discussion on achievements and challenges of students' *kaizen* activities. • Comments and advice from rector, lecturers and enterprise experts.	4.0
	Total Course Hours	20.0
Factory Tour	Learning how enterprises implement 3S and safety measures.	2.0
Lecture by Enterprise Experts	Learning how enterprises implement 3S and safety measures.	1.5

Source: Drafted by the authors.

end of the courses. Students are required to design a project from earlier training modules rather than doing everything in the last module.

In addition, some new concepts or methods were integrated in those new courses. The safety course included two new elements, namely *Kiken Yochi Training* (KYT) (hazard prediction training)[15] and risk assessment. Regarding 5S, the PDCA (Plan, Do, Check, Act) cycle was enhanced. The Vietnamese counterparts learned the basic concept of these new elements through training in Japan, and then adapted them, considering the capacity of lecturers, students, and stages of industrial development in Vietnam, with technical guidance form Japanese experts.[16]

Third, the courses are delivered interactively. Lectures are encouraged to communicate with students throughout the courses throughout Q&A. Also, most exercises, such as 5S LEGO game and practical lessons, such as 5S and safety project, are conducted through group work.

Finally, course delivery was standardized through the development of common teaching materials, trial lessons, and the ToT programs. A possible drawback of a course with many practical or interactive lessons is the difference in class quality depending on who teaches the course. In order to avoid this problem, two TVET institutions developed lesson plans and handouts which were shared with all lecturers in charge of the courses. Also, trial lessons provided them with opportunities for mutual learning and standardization of teaching methods. Moreover, the ToT programs enabled lecturers to align their understanding of new elements and teaching methods of practical lessons.

4.2.1.3. Key success factors

The two model institutions started implementing the 5S and safety courses and had trained 4,250 students in total by 2019 (see Table 7.7). The following elements were key to achieving this result: (i) consensus on a strategy for developing practical lessons; (ii) adaptation of technical cooperation delivery on the Japanese side; (iii) commitment of TVET institution senior leaders; (iv) healthy competition and mutual learning

[15] KYT is a training method whereby, through pre-work meetings or other procedures, workers are given advance warning of the kinds of unsafe conditions or unsafe behavior that are in their immediate sphere of activity, thereby ensuring their own personal safety and that of those around them. See: JICOSH (2024).

[16] The curricula of DCoHT and LHU includes 3S, or *Seiri, Seiton*, and *Seiso* since Japanese experts recommended focusing on 3S rather than trying to cover the entire 5S. However, they have started providing training on the rest of 5S (*Seiketsu* and *Shitsuke*), through the implementation of 5S in workshops. Therefore, this chapter considers that two model TVET institutions have provided 5S training courses.

Table 7.7. Number of Participants in the 5S and Safety Courses (2016-2019)

Institution	Course*	2016	2017	2018	2019**	Total
Dong Nai College of High Technology (DCoHT)	5S	72	430	1,144	206	1,852
	Safety	72	430	1,144	206	1,852
	Subtotal	144	860	2,288	412	3,704
Lac Hong University (LHU)	5S	93	84	96	N/A	273
	Safety	93	84	96	N/A	273
	Subtotal	186	168	192	0	546
Total		**330**	**1,028**	**2,480**	**412**	**4,250**

Note: *DCoHT provided a combined 5S and safety course, while LHU offered separate 5S and safety courses. However, it is likely that the same students participated in both courses.
**LHU has not yet accumulated participant data for 2019 as of Dec. 2019.
Source: Drafted by the authors based on data provided by DCoHT and LHU.

between the two model TVET institutions, which created incremental innovation; and (v) identification of strong industry partners.

First, the perceptions of practical lessons had to be aligned between the Vietnamese counterparts and Japanese experts. After the first training session in Japan, which included visits to training centers at an industrial university and Japanese companies, the Vietnamese counterparts thought that they had to purchase high-end equipment to conduct 5S and safety training. However, the Japanese experts recommended utilizing existing equipment and tools as well as materials available in local markets to develop training equipment and tools. This is because it is neither feasible nor sustainable to purchase expensive equipment, given the financial constraints on Vietnamese TVET institutions. The Vietnamese counterparts gradually understood this recommendation through many discussions and demonstrations, including by developing a simple simulator for the safety experience room in cooperation with a DCoHT lecturer. This also accelerated healthy competition between the two model TVET institutions, as explained below.

Second, the Japanese experts had to adapt their experiences to provide technical guidance for the Vietnamese counterparts. In Japan, the concepts of 5S and safety have taken root in the home and at schools as typified by efforts to clean and keep things tidy and in order. Since basic 5S has become tacit knowledge, technical colleges and industrial high schools do not have a course designed for 5S. Therefore, Japanese experts had

to develop a new proposed 5S curriculum structure for the model TVET institutions. In other words, they needed to convert their tacit knowledge into explicit knowledge (see Nonaka and Hirose-Nishihara 2018). In this sense, they went through the knowledge co-creation process (see Ohno 2016).

Third, the two model TVET institutions accelerated results deliver after senior leaders of the institutions had started demonstrating their commitment and interest in the Dong Nai MHRD Project. However, the model institutions demonstrated different levels of commitment. At DCoHT the Rector showed a strong commitment to the project from the beginning. He joined all training sessions in Japan, including the first one, and instructed his teaching staff to develop a 5S and safety course as soon as possible. The role of Japanese experts was to help him to develop feasible plan to start this course, while allowing sufficient time for the development of teaching materials, trial lessons, and training of trainers. In contrast, progress at LHU was rather sluggish in the first year, despite efforts made by lecturers participating in the Dong Nai MHRD Project. Therefore, the Japanese expert team had a designated meeting with the Vice Rector to seek his support together with LHU lecturers. After joining the ToT program, the Vice Rector started showing increasing interest in the project. This resulted in the development of the 5S and safety course becoming a LHU organizational initiative, and not simply the initiative of a few lecturers participating in the project.

Fourth, healthy competition between the two TVET institutions encouraged them to improve training programs. They demonstrated different comparative advantages in the process of developing their 5S and safety courses. For example, LHU demonstrated their design skills, such as the development of curriculum and hand-made safety simulators in its safety experience room. On the other hand, DCoHT's comparative advantage was implementation. They set up a safety experience room faster than LHU with a set of simple hand-made equipment and existing tools. LHU developed more sophisticated simulators by referring to DCoHT's room. Furthermore, DCoHT developed various teaching materials and tools for exercises and practical lessons, such as handouts for the 5S LEGO game and reusable worksheets for risk assessment exercises. They also added a 5S implementation module to the course, encouraging lecturers and students by utilizing materials available in the institution, such rubber tubes to set tools in order. In short, healthy competition between the two

model TVET institutions led to incremental innovation, some of which even went beyond Japanese experts' recommendation and expectation.[17]

Finally, identification of Japanese SMEs which showed strong interest in the Dong Nai MHRD Project gave the Vietnamese counterparts confidence to continue their activities. For example, Japanese SMEs which are members of the Project Promotion Committee participated in study tours led by lecturers and students. At the later stage of the project, they requested that two model TVET institutions provide short-term training on 5S and safety for their employees.[18] This gave the lecturers confidence to develop partnerships with Japanese SMEs. This also occurred at another TVET institution supported by JICA, HaUI (see Chapter 3).

4.2.2. Phase II: The project funded by the Dong Nai provincial government

4.2.2.1. Project overview

The Phase II project was the full initiative of the Dong Nai provincial government, which intended to disseminate the results of the Phase I project to other TVET or higher education institutions. The project was conducted from May 2018 to November 2022 with the three key outputs: (i) knowledge and skills transfer from the two model TVET institutions to other institutions in Dong Nai province through the ToT program; (ii) enhancement of the Project Promotion Committee by strengthening DIZA's coordination capacity and adding more committee members; and (iii) the development of sustainable training of trainers systems by elaborating a plan to establish a ToT center which continues to train 5S and safety trainers by retaining master trainers from DCoHT and LHU (see Table 7.8).

The Phase II project was implemented by DIZA. PREX was commissioned as a coordination organization on the Japanese side in order to mobilize Japanese experts, all of whom had continued to work since the Phase I project (see Table 7.9). While DCoHT and LHU remained in the project team as local trainers, three new TVET and higher education institutions

[17] In production sites of companies, the 'incremental innovation' can be produced through a *Kaizen* approach. See Homma (2024, 329).

[18] DCoHT provided a short-term course on workplace safety for Nankai Kinzoku Vietnam in February 2017, while the joint team of LHU and DCoHT provided a short-term course on Techno Global Vietnam in August 2017.

Table 7.8. Output and Key Activities of the Phase II project

Output	Key activities
1. Knowledge and skills transfer from two model institutions to other institutions in Dong Nai	• Select target TVET institutions. • Set up the master trainer team. • Develop the ToT program. • Conduct on-site technical guidance.
2. Enhancement of the Project Promotion Committee.	• Develop DIZA's coordination capacity to organize the committee meetings. • Expand the committee members by including new institutions and Japanese companies.
3. Development of sustainable systems of training of trainers	• Develop a plan to establish a ToT center to continuously train 5S and safety trainers by retaining master trainers from two model TVET institutions.

Source: Drafted by the authors.

Table 7.9. Implementation Structure of the Phase II Project

Country	Details
Vietnam	[Implementing Agency] DIZA: Deputy Director, manager, and staff [Model TVET institutions] • DCoHT: Five lecturers in total • LHU: Three lecturers in total [New partnering institutions] • DNU: Six persons in total • DNETC: Two persons in total • TCKTKT2: Two persons in total
Japan	[Coordinator] PREX (Two staff) [Three experts] • Professor from Osaka Prefectural University College of Technology • Former JICA expert for the Project for Human Resource Development of Technicians at the Hanoi University of Industry (HaUI) (secondary author) • Osaka prefectural government official (primary author)

Source: Drafted by the authors.

participated in the project: (i) Dong Nai University (DNU); (ii) Dong Nai Economic and Technical College (DNETC);[19] and (iii) Vocational Secondary School of Economics and Technology No. 2 (TCKTKT2).[20] These new partner education and training institutions were assessed and selected based on criteria which DIZA and Japanese experts developed together (see Table 7.10).

[19] DNETC became part of DCoHT during the Phase II project.

[20] DIZA also selected Dong Nai Technology University (DNTU) as a partner TVET institution, but the institution did not participate in project activities.

Table 7.10. Selection Criteria of New Partnering Institutions

#	Criteria	Indicators
1	Commitment of top management	Quick implementation of 3S and safety measures.
		Strong commitment to develop curricula and teaching materials by allocating sufficient number of lecturers.
		Strong commitment to develop 3S/safety experience room.
		Strong willingness to start 3S/safety activities on campus.
		Strong willingness to be involved in project management.
		Desire to accommodate Japanese companies' strict quality requests.
2	Sufficient students in relevant faculties	Reasonable number of new students in the faculties of mechanical engineering, electrical engineering, electric engineering in the past three years.
3	Reasonable training facilities and equipment	Availability of basic mechanical, electric, and electronic engineering training equipment.
4	Location	Reasonably close to DCoHT and LHU.
5	Willingness for mutual learning of local good practices	Eager to learn from DCoHT, LHU, and other TVET institutions; not always requesting technical guidance from Japanese experts.
6	Not spoiled by other ODA projects	No/less involvement in other ODA projects.
7	Neutrality	Not related to military activities.

Source: Drafted by the authors.

In Phase II of the project, the Vietnamese trainer team, consisting of DCoHT and LHU lecturers trained during Phase I, mainly guided lecturers from the three new partnering institutions. Japanese experts reckoned that the DCoHT and LHU trainers had already developed enough knowledge, confidence, and teaching tools through the Phase I project. Thus, rather than directly providing technical guidance, Japanese experts focused on assisting DCoHT and LHU lecturers to develop ToT programs for newly joined TVET institutions and design training sessions in Dong Nai and Japan. They also provided hands-on advice for DCoHT and LHU lecturers.

4.2.2.2. Achievements and challenges

The Phase II project delivered most of the target results, which included: (i) development and implementation of ToT programs for three new participating institutions; (ii) capacity development of trained trainers from DCoHT and LHU through a learning-by-doing process; (iii) development

Table 7.11. Main Results and Technical Cooperation of the Phase II Project

Item	Details
Main results	• The development and implementation of ToT programs at three new participating institutions. • The capacity of trained trainers from DCoHT and LHU was enhanced through a learning-by-doing process. • Three partnering institutions developed curricula for 5S and safety courses, with technical guidance from DCoHT and LHU. • DIZA organized Project Promotion Committee meetings with guidance from PREX and Japanese experts. • A plan for a future ToT center was drafted and the mechanism for financial sustainability was suggested.
Technical cooperation	• Training in Japan (two sessions): Visits to companies and public vocational training facilities and visits to and training at universities and technical colleges. • Provision of technical guidance in Dong Nai (three sessions): Provided technical guidance for developing the ToT programs, including trial lessons, curriculum development in new partnering institutions, design of safety experience rooms at new partnering institutions, and a plan to establish a ToT center.

Source: Drafted by the authors.

of curricula for 5S and safety courses at new partnering institutions, with technical guidance from DCoHT and LHU; (iv) development of DIZA's capacity to organize Project Promotion Committee meetings; and (v) a plan for the establishment of a ToT center and suggested financial sustainability mechanism (see Table 7.11).

The most important result was the development and implementation of the ToT program for 5S and safety at three new partnering institutions. DCoHT and LHU trainers jointly developed the program with technical guidance from Japanese experts. In delivering the program, the LHU team provided modules for 5S, while DCoHT taught safety training modules. This tangible asset contributed to further dissemination of project results.

During the activities outlined above, the Dong Nai MHRD Project faced challenges in leveling knowledge of participants, securing their commitment, and coordinating multiple stakeholders. Furthermore, the project activities were disrupted at the last stage in 2020 by the movement restriction due to COVID-19. This delayed the important process of synthesizing project results until 2022. These challenges are analyzed in the next section.

5. Findings of Field Study

5.1. Research objectives and method

The project results presented in the previous section indicate that the Vietnamese counterparts learned and adapted 5S, safety, and partnership development between TVET institutions and Japanese companies through the two phases of the project. They have also disseminated the results to other education and training institutions in Dong Nai province on their own initiative. However, in order to determine whether the translative adaptation process occurred as a result of the project, it is important to examine how the Vietnamese counterparts perceived the processes, challenges, and results. Therefore, field research interviews were conducted in Dong Nai province from December 5 to 12, 2019 in order to obtain qualitative data on their perceptions.

The interview questions mainly focused on: (i) changes or development which have taken place; (ii) results and effects of the project; and (iii) challenges in absorbing technical guidance from Japanese experts at the beginning and middle of the project implementation period. In particular, the interviews concentrated on two key project outputs; (i) the development of 5S and safety course curricula at two model TVET institutions; and (ii) the development of institutional mechanisms to promote partnerships between Japanese SMEs and partnering TVET institutions. The interviews targeted Vietnamese counterparts at DIZA, DCoHT, and LHU, as well as Japanese companies which have invested in Dong Nai province (see Table 7.12).

5.2. Counterpart perception of results

The interview data indicated that the Vietnamese counterparts perceived behavioral changes for the promotion of 5S and safety at model TVET institutions and benefits of scaling-up and disseminating project results.

5.2.1. Behavioral changes at model TVET institutions

Model TVET institution staff perceived changes in campus itself, lecturer attitudes about 5S and safety promotion, and recognition by industry. LHU lecturers stated that the campus became cleaner, and the number of accidents dropped after the project implementation. They also reported that graduates who took these courses were well-received at Japanese- and

Table 7.12. Profile of Interviewees

No	Pseudonym (Organization)	Number of Interviewees	Pseudonym (Interviewee)
1	Dong Nai Industrial Zone Authority (DIZA)	2	Director A, Manager A
2	Dong Nai College of High Technology (DCoHT)	2	Director A, Manager A
3	Lac Hon University (LHU)	4	Director A,Lecturer A, Lecturer B, Lecturer C
4	Vocational Secondary School of Economics and Technology No. 2 (TCKTKT2)	1	Lecturer A
5	Dong Nai Economic and Technical College (DNETC)	1	Lecturer A
	Vietnamese Counterparts*	10	
1	Large Japanese assembler	2	Manager A, Supervisor A
2	Japanese electronic parts supplier A	1	Senior Manager A
3	Japanese electronic parts supplier B	1	HR Manager A
4	Japanese mold and die manufacturer	1	Director A
	Japanese companies	5	
	Total Number of Interviewees	**15**	

Note: *The actual name of the organization was shown since it is obvious that this research focuses on these Vietnamese counterparts.
Source: Drafted by the authors.

foreign-affiliated companies and that more Japanese companies are visiting LHU. Another perceived result is the increasing number of new students as a result of PR about the project results. According to them, it is likely that students consider that employment opportunities will increase after taking the 5S and safety course.

LHU lecturers also mentioned that their senior leaders, lecturers, and students are increasingly aware of the benefit of promoting 5S and safety. For example, after robotic workshop students fully experienced the effects of 5S in terms of productivity improvement and accident reduction, they changed their attitude and started throwing away garbage on their own initiative. According to the lecturers, this caused spillover effects. While teachers not involved in the project initially did not show interest in the 5S promotion initiative, they eventually did so after observing

visible changes resulting from the project.[21] Manager A of DCoHT, who had industry work experience, presented the learning outcomes of the Dong Nai MHRD Project. When working at the company, she had only a superficial knowledge of 5S and safety. However, this project enabled her to obtain a deeper understanding of these subjects and helped brush up her knowledge.

5.2.2. Positive attitudes for scaling up 5S and safety courses

The interview data indicate both DCoHT and LHU plan to scale up the 5S and safety courses. According to LHU Director A has initially introduced the 5S and safety course in mechanical and electronic engineering faculties but will eventually expand it to all other faculties while continuing to improve the curriculum through discussion among lecturers. Finally, LHU plans to provide more 5S and safety training for firms, as it has started receiving such requests from Vietnamese firms. This indicates that they developed the confidence to disseminate the project results even to industry due the success of the in-service training provided in the Dong Nai MHRD Project. In fact, Director A of a Japanese mold and die manufacturer, whose employees received 5S training by DCoHT and LHU project members, reported that Vietnamese teachers provide training more effectively than Japanese staff. He also hopes that they can continuously provide technical guidance for their employees because they face challenges in maintaining 5S in their factory. Supervisor A of a large Japanese assembler suggested that TVET institutions provide more training on professional working behavior and discipline for their students, since they observed that many graduates quit jobs because they could not adapt to the workplace environment after enjoying a relaxed school life.

DCoHT Director A presented a plan to train 80 per cent of its teachers in order for them to be able to provide the 5S and safety course to all students. Furthermore, he said that, since the number of its students grew by 25 per cent in 2018 and 18 per cent in 2019, the college intends to ensure that all students take the 5S and safety course. Finally, he stated that, as it was pointed out that the productivity of vocational training schools in Vietnam was low, the school wants to overcome this weakness through offering this course. He expects that the course will also help students

[21] See Table 7.4 and Table 7.9 for the core project members.

make a better impression when they visit companies. This comment is also supported by an interviewed firm. Regarding the impact of the 5S and safety courses, Supervisor A of a large Japanese assembler which had worked with the two model institutions, stated that after the 5S and safety courses were implemented, the students it hired were well-disciplined and were more interested in learning about the company during study tours.

5.2.3. Effectiveness of the Project Promotion Committee

DIZA intends to continue the Dong Nai MHRD Project based on the current project design (as of 2019) and implement it at a wider range of schools, according to the interview data. In particular, DIZA regarded the Project Promotion Committee as an effective mechanism to determine industry skills needs in comparison with their past initiative which, while it involved Japanese and other foreign-invested enterprises, did not help them obtain useful information from those firms. This is basically consistent with model TVET institution perceptions. Interviewed LHU lecturers stated that the Program Promotion Committee provided a good opportunity to listen to firms' advice, even though they noted that, since member firms had not had sufficient time to observe the results at model TVET institutions, their comments on the 5S and safety courses had been limited.

Interviewed DIZA staff also reported that the top management of the Dong Nai provincial government gave high marks to the benefits from the Dong Nai MHRD Project due to its contribution to increasing the supply of skilled workers for industry. According to them, this helped them mobilize funding for the Phase II project from the provincial government. On the other hand, interviewed DIZA staff explained that in order to advance the project, it was necessary to attract more Japanese-affiliated SMEs and establish a manufacturing support base, such as the Monozukuri Business Information Center Osaka (MOBIO).[22]

[22] The Monozukuri Business Information Center Osaka (MOBIO) is Osaka Prefecture's manufacturing support base and was opened in Higashi-Osaka City in April 2011. It has a 200-booth permanent exhibition hall and industry-academia partnership offices, providing one-stop support to SMEs in Osaka Prefecture. See: MOBIO (2018).

5.3. Challenges and solutions faced by the Vietnamese counterparts

5.3.1. Issues and measures in the early stage of the project

According to the interview data, staff of two model institutions perceived the following three challenges: (i) uneven knowledge of 5S and safety among lecturers who were core project members; (ii) handling project assignments in addition to their regular work; and (iii) aligning expectations with Japanese experts.

5.3.1.1. Uneven knowledge among core project members

There were differences in the degree of understanding of 5S and safety among core project members, depending on their experience in industry. Senior leaders and some DCoHT lecturers were likely to understand the key points of 5S and safety taught by Japanese experts faster because they had industry experience or a certain level of knowledge about the subject gained prior to the Dong Nai MHRD Project. In contrast to DCoHT, most LHU lecturers did not have industry experience. Thus, it took time for them to understand key elements of 5S and safety, which are not academic knowledge but working knowledge developed at production sites. In order to overcome this challenge, LHU organized an internal class for its lecturers and held weekly study meetings where they shared knowledge.

5.3.1.2. Handling project assignment as extra work

Many model institution lecturers had to undertake project assignments on top of their regular teaching work. DCoHT Manager A mentioned that she and her colleague struggled with the need to handle this work in a limited amount of time, in addition to their regular jobs. They were concerned about being able to fully implement the project due to being overtasked without additional time allowance. She mentioned that they would have dropped out of the project if they were not continuously motivated by Japanese experts, who were enthusiastic about the project.

DIZA, the leading Vietnamese counterpart, also recognized this issue. DIZA Manager A reported that in the early stage of the Dong Nai MHRD Project, it was difficult to coordinate the schedules of core project members from two model TVET institutions. DIZA noted that these lecturers were rather hesitant to allocate significant time for project activities because they were not granted additional time for them on top of their original teaching work. Therefore, DIZA solved this issue through discussion with

senior leaders of those institutions.

5.3.1.3. Aligning expectations with Japanese experts

The core project members from DCoHT and LHU did not clearly understand what activities and tasks they were expected to take leadership with at the beginning of the project. Interviewed LHU lecturers said that in the beginning, they expected Japanese experts to provide a ready-made curriculum for the 5S and safety course which could be utilized immediately. According to the authors' observation, this was because of the perception gaps with Japanese experts who anticipated the Vietnamese counterparts would develop the curricula based on reference materials technical guidance they provided. This problem was solved when Japanese experts clearly explained their expectation that the Vietnamese counterparts should develop their own curricula, given that there is no stand-alone course for 5S in Japanese technical colleges or industrial high schools.

5.3.2. Challenges and countermeasures in the middle stage of the project

The interview data suggest that the Vietnamese counterparts had to overcome various challenges in developing and implementing the 5S and safety courses and scaling up the results in their institutions and beyond.

5.3.2.1. Adapting Japanese models for training program development and implementation

DCoHT and LHU faced challenges training their lecturers and determining industry skills needs for the development and implementation of the 5S and safety courses.

DCoHT Director A realized the necessity of adjusting the 5S and safety course curriculum based on local needs. However, he mentioned that it was a time-consuming and costly processes. Furthermore, he reported two more challenges. First, they had to work hard to change the mindset of lecturers through the ToT program. For example, it was challenging to develop the capacity of lecturers to provide KYT and risk assessment training. According to him, many Vietnamese did not feel that dropping a hammer was a problem if nobody was injured. Nonetheless, their lecturers should recognize that dropping a hammer itself is problematic when teaching KYT or risk assessment. DCoHT Director A also valued

the guidance provided by Japanese experts in Vietnam, saying that they introduced and demonstrated their philosophy toward work and then urged students to think about it. He also said that training process management (the PDCA model) and the provision of trial lessons helped them train their lecturers.[23] Interviewed LHU lecturers also said that it was difficult to explain to humanities course students how 5S and safety knowledge could be applied in daily life because they did not have manufacturing experience. To solve this issue, LHU lecturers introduced easy-to-follow examples of applying 5S and safety to the classroom and daily life (e.g., sorting out white board makers and return them to original positions). This increased the interest of students without engineering, science, or manufacturing backgrounds.

5.3.2.2. Scaling up pilot training courses within two model institutions

The two model institutions faced difficulty training other lecturers to expand the 5S and safety courses to faculties or departments of which they were not in charge.

In order to expand the 3S and 5S courses to the entire institution, the core project members, directly trained by Japanese experts, had to train other lecturers who had not yet participated in project activities. However, core staff members at both institutions reported difficulty motivating other lecturers because they did not share the same level of passion for the implementation of 5S and safety. LHU lecturer A expressed concern about whether lecturers who newly joined the project could provide students with the same level of knowledge and passion as the core project members had been doing. In order to solve this problem, LHU project members provided ad-hoc lectures for teaching staff in other faculties. Similarly, DCoHT Manager A reported that they attempted to train other lecturers based on their personalities and teaching styles. She also pointed out the advantage of providing training in Vietnamese, referring to the difficulty in receiving training in Japanese with interpreters who often did not know technical terms.[24]

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[23] The training process management system consists of seven main steps: (i) determination of industry skills demand; (ii) selection of training fields; (iii) development of curricula; (iv) preparation for training program delivery; (v) implementation of training programs; (vi) evaluation of training programs; and (vii) formulation and implementation of action plans (see Figure 1.1 of Chapter 1 and Chapter 3).

[24] The problem caused by insufficient quality interpretation is a possible drawback of technical cooperation provided through short-term missions of foreign experts. This may be less likely for a project to which resident long-term foreign experts and national

Considering the Japanese experts' view that the 5S and safety courses will only be sustained if they are implemented across entire institutions, both DCoHT and LHU have been trying to promote 5S on campus beyond the regular training courses. However, interview data suggest that the progress has been faster at DCoHT than LHU due to the strong commitment and leadership of top management. DCoHT Director A stated that, based on his belief in equal education, he was willing to provide the 5S and safety courses to all students from the beginning of the project. He explained that 5S had become an initiative of the entire institution. DCoHT is collecting student suggestions for 5S implementation while posting the results of activities on its website so that all students can follow the progress. On the other hand, LHU has not yet reached the point where students practice 5S on a daily basis beyond the faculties of mechanical and electronic engineering, where the core project members are working. In order to overcome this challenge, interviewed LHU lectures reported that they have been attempting to change student mindsets through company visits and internships which enable students to learn how firms implement 5S. In addition, they suggested that they try to maintain 5S in classrooms and workshops by implementing periodic on-site checking.

5.3.2.3. Developing and maintaining the institutional mechanism for engaging industry

DIZA regards the Project Promotion Committee as a useful option to engage industry (see Section 5.2.3). At the same time, they expressed concerns about its sustainability, observing the case that a director of a Japanese company, who served as a member of the committee, returned to Japan when his term finished. Therefore, interviewed DIZA staff expressed their intension to encourage other Japanese companies to join the Program Promotion Committee, taking advantage of various occasions to meet them.

The two model TVET institutions have also indicated that it is challenging to determine local industry skills needs for curriculum development through Project Promotion Committee meetings. DCoHT Director A reported that many firms do not have enough time to inform TVET institutions of their needs, either through face-to-face meetings, including the Program Promotion Committee meetings, or surveys.[25]

coordinators are attached, such as the HaUI-JICA Project (see Chapter 3).

[25] This is a typical problem which government and TVET institutions face when they try to

On the other hand, it is likely that industry believes that their feedback is not fully utilized by TVET institutions. Although his comment is not about the project activities, HR Manager A of Japanese electronic parts supplier B reported that they received little feedback on their actions after companies conveyed their opinions at the LHU and Dong Nai University (DNU) advisory committee meetings. Moreover, even if companies contacted universities about employment and related matters, the responses provided by these universities were insufficient. This implies that perception gaps and mistrust remain issues to be solved (also see Mori and Stroud 2022).

5.4. Summary of findings

The interview data show that the strong leadership of the two model TVET institutions enabled them to deliver the intended project results, in particular the development and implementation of the 5S and safety courses. Both model TVET institutions recognized the benefits of developing the 5S and safety course curriculum and teaching materials based on local economic or cultural contexts rather than importing these from Japan. Moreover, such recognition led them to understand the benefits of core project members continuing to train other lecturers through the ToT programs.

These institutions have been expanding the 5S and safety courses across their campuses with strong support from top management. As a result, all students take the 5S and safety courses. LHU has been also extending the 5S and safety course to all departments, but this has only happened when lecturers who have participated in the project activities together with Japanese experts, convinced their top management to implement it. This means that DCoHT has been implementing and scaling up project activities using a top-down approach, while LHU has been doing so but using a bottom-up approach.

Furthermore, the institutions have been overcoming challenges by promoting self-learning in the early and middle stages of the project, influenced by Japanese experts' passion but not solely relying on their guidance. The original project members have absorbed knowledge of new subjects, taking advantage of continuous encouragement from Japanese

adopt the supply-side approach. See Mori (2019).

experts and support from DIZA, despite the challenge in undertaking project assignments on the top of their regular teaching work. They have also been transferring their knowledge and teaching skills to other lectures through the ToT programs, which were developed taking into account the personalities of those lecturers and offered in Vietnamese. This means that ToT, or mutual learning, has functioned to promote adaptation of the Japanese model, although the DCoHT and LHU lecturers indicated the difficulty in transferring not only technology but passion for the subjects. The effect of self-learning was also found at HaUI (see Chapter 3).

Finally, DIZA faced the difficultly of adapting the institutional mechanism to develop partnerships between TVET institutions and Japanese SMEs, although the project has helped them develop their coordination capacity to a certain extent. This implies that it takes time to develop and maintain the institutional mechanism for industry engagement in TVET.

6. Discussion: Key Elements of the Translative Adaptation Process

This section examines the project activities and delivery modes in reference to the framework developed based on translative adaptation, knowledge creation, and import replacement (see Section 2).

6.1. Difference in adaptation among the Vietnamese counterparts

Key activities and delivery modes of the project are mapped by each process of translative adaptation and the SECI model of knowledge creation in Table 7.13. This indicates that the two model TVET institutions went through each process with more systematic training and technical guidance than DIZA.

Table 7.13. Translative Adaptation and Knowledge Creation Processes at Two Model TVET Institutions and DIZA

Translative adaptation	Knowledge creation	Two Model TVET institutions (DCoHT and LHU)	DIZA
Learning stage	• Clarification of target tacit knowledge	■ Key output clarified mainly through field interviews by Japanese experts and DIZA • Theme: Introduction of 5S and safety as well as the teaching methods of Japanese technical colleges and industrial schools ■ Training in Japan • Learned teaching methods of technical colleges and industrial high schools • Learned safety training at companies • Learned about 5S and basic production management methods from a university and companies that practice them and consultants, etc.	■ Key output clarified mainly through field interviews by Japanese experts and DIZA • Theme: Development of DIZA's capacity to facilitate partnerships between TVET institutions and Japanese SMEs ■ Field interviews with Japanese companies and technical guidance from Japanese experts • Learned methodologies to grasp needs such as interviews with local Japanese companies and surveys ■ Training in Japan/technical guidance form Japanese experts in Vietnam • Learned project management methods • Learned the overview of an institutional mechanism in Japan
Adaptation / Internalization stage	Socialization	■ Training in Japan • Absorbed what they learned and clarified questions and points for further learning through wrap-up sessions • Developed the preliminary curriculum outlines and the outline of textbooks based through workshops with technical guidance form Japanese experts • Developed a detailed work plan to prepare and implement the 5S and safety courses • Developed textbook outlines	■ On-the-job training by Japanese experts • Held interviews with Japanese companies • Designed and conducted surveys of Japanese companies ■ On-the-job training through organizing training in Japan/ technical guidance from Japanese experts in Vietnam • Learned project planning and management (progress monitoring, fund management, etc.) • Handled administrative jobs mainly based on the request from PREX • Administered coordination between companies and model TVET institutions for visits to companies and internships as needed

Translative adaptation	Knowledge creation	Two Model TVET institutions (DCoHT and LHU)	DIZA
Adaptation / Internalization stage	Socialization		・ Established the Project Promotion Committee (selecting committee members, inviting them, and administering the committee)
	Externalization	■ Workshops and meetings with Japanese experts in Vietnam ・ Refined and finalized curricula, textbooks, and tools/equipment. Healthy competition between two institutions promoted creativity ・ Developed ToT programs for lecturers in charge of 5S and safety	■ Training in Japan/technical guidance form Japanese experts in Vietnam ・ Developed the operation manual of the Project Promotion Committee ・ Developed the job flow for coordinating visits to companies and internships (development of forms, etc.)
	Combination	■ Activities led by model TVET institutions ・ Organized trial lessons with guidance from Japanese experts ・ Convened the Project Promotion Committee (opportunities to hear external opinions and make presentations to external parties) ・ Integrated 5S and safety courses as regular training programs ・ Conducted School-wide 5S activities	■ No particular initiative led by DIZA ・ Probably because there was no conversion of tacit knowledge to explicit knowledge, such as the conversion of the manual and job flows to official documents of the authority in the process of externalization
	Internalization	■ Activities led by model TVET institutions ・ Implemented internal ToT programs and other ad-hoc lectures and meetings with other lecturers ・ LHU: Implemented the course in the mechanical and electronic engineering faculties ・ DCoHT: Implemented the course for all first-year students	■ Activity led by DIZA ・ Developed the Phase II project which aimed to apply the results of the Phase I project to other TVET institutions in the province and obtained approval and funding from the provincial government

Translative adaptation	Knowledge creation	Two Model TVET institutions (DCoHT and LHU)	DIZA
Scaling-up stage		■ Disseminating project results outside the institutions ・ Provided ToT and technical guidance for three new partnering institutions in Phase II → Assist new institutions in going through the same processes as the ones model institutions experienced ・ Provided in-service 5S and safety training for Vietnamese employees of Japanese companies	■ Disseminating project results to new partnering institutions ・ Administered project planning, budgeting, and budget execution of the Phase II project

Source: Drafted by the authors.

6.1.1. Adaptation and the knowledge creation process for two model TVET institutions

In the learning stage, the two model TVET institutions had a chance to acquire not only explicit knowledge through formal training programs on 5S and safety but also tacit knowledge through the learning and teaching methods of Japanese technical colleges and visiting the safety experience facilities of Japanese companies. Furthermore, they organized self-learning opportunities, such as internal knowledge-sharing meetings.

They moved to the socialization process through developing the 5S and safety course curricula by synthesizing fragmented knowledge with technical guidance from Japanese experts. The interview data also suggested that they have absorbed Japanese experts' passion for the subject.

As a next step, the two model TVET institutions externalized what they learned as teaching materials, teaching methods, and equipment in safety experience rooms. They were customized, considering the capacity, knowledge and characteristics of lecturers and students as well as the availability of materials and tools in local markets. In this step, Japanese experts encouraged the leadership and creativity of the Vietnamese counterparts, providing technical guidance as needed. In addition, as

mentioned in Section 4.2.1, healthy competition between two institutions accelerated the adaptation of Japanese models.

In the process of combination, the two institutions converted what they learned to the internal ToT programs, including trial lessons, based on the curricula they developed. They developed a strategy to scale the pilot courses to all departments and promote 5S activities on campus. At this stage, Japanese experts limited their intervention to advice on critical issues only.

Finally, in the process of internalization, the two model institutions implemented internal ToT programs and the 5S and safety courses. They have also started expanding it to the entire institutions beyond pilot faculties. Furthermore, in the Phase II project, they have started transferring their knowledge to other TVET institutions through external ToT programs. Technical guidance from Japanese experts focused on quality assurance and strategic issues, while relying on the two schools to figure out the details.

6.1.2. Adaptation and the knowledge creation process for DIZA

DIZA has also been through a socialization and externalization process. They have learned project management and institutional mechanisms for facilitating partnerships between TVET institutions and Japanese companies. They also developed the operation manual of the Project Promotion Committee and the job flow for coordinating company visits by partnering TVET institutions and internships. Technical cooperation was delivered for these activities mainly through on-the-job training rather than formal training.

However, the research did not identify specific activities and products for the combination and internalization processes. DIZA has played a leading role in organizing the Project Promotion Committee and responded to some requests from partnering TVET institutions. Nonetheless, they have not yet adapted the 'consortium' model for economic, social, or institutional contexts of Dong Nai province (see Section 4.1.2). As a result, they have not yet created official government documents with the manual and job flows, while the two model TVET institutions managed to make the 5S and safety courses part of their regular training programs. This partly explains why the feedback provided by the model TVET institutions indicates that

the functions of the Project Promotion Committee need improvement. It should be highlighted that DIZA led the formulation of the Phase II project which enabled the Dong Nai MHRD Project to disseminate the results to other TVET institutions, mobilizing the funds from the Dong Nai provincial government. This is a key achievement. On the other hand, their capacity to facilitate partnerships between Japanese SMEs and TVET institutions basically remain the same as during the Phase I project, even though they have started demonstrating stronger leadership in organizing the Project Promotion Committee meetings.

This absence of adaptation or internalization is likely to be caused by noncompletion of externalization and combination processes, can be attributed to the following. First, the key output for DIZA, the development of an institutional mechanism to facilitate partnerships between TVET institutions and Japanese companies, was neither sufficiently broken down to sub-outputs nor explained in a form of a roadmap showing the functions to be developed in the short- and medium term. This is contrast with the model TVET institutions, which have developed detailed project workplans, following the key steps of training process management which consists of the development of curriculum, teaching materials, lecturers' capacity, trial lessons, course implementation, evaluation, and an action plan. In other words, DIZA did not form a concrete vision or roadmap with a list of sub-outputs to help develop its capacity as an agency to facilitate partnerships between TVET institutions and Japanese companies.

Second, DIZA was burdened by the administrative work of project management, including overall project progress monitoring and coordination with two model TVET institutions and Japanese companies. This on-the-job training contributed to DIZA's project formulation and management capacity, which led to the development of the Phase II project. However, DIZA did not have sufficient opportunities to deeply understand the details of institutional mechanisms for industry engagement in TVET and the roles of public organizations. As a result, DIZA could not gain thorough tacit knowledge of the socialization process. This made it difficult for them to go through the externalization and combination processes to the fullest, even though they internalized the project management and formulation knowledge.

Finally, they did not have a knowledge sharing partner in Dong Nai

province unlike the two model TVET institutions that learned mutually. Their knowledge sharing partner was the Japanese experts with whom they could not interact regularly or in their native language.

In short, the degree of adaptation depends on whether the Vietnamese counterparts have completed the knowledge creation process. To achieve this, the research findings suggest that sub-outputs or products and the mid-term vision should be clearly shared among project implementation partners in the early stage, although they can be adjusted in the process of project implementation. Furthermore, the combination of formal and informal learning as well as mutual learning among local partners helps promote adaptation. In particular, mutual learning opportunities are important for projects that have no resident foreign expert.

6.2. Importance of improvisation for knowledge creation

The above discussion indicates the importance of digesting and modifying foreign models in local contexts to complete the externalization and combination processes of knowledge creation, or adaptation. By completing these processes, the two model TVET institutions were able to convert tacit knowledge to explicit knowledge that can be transferred to other stakeholders. It is presumed that technical cooperation in the hands-on approach is required to support these processes, which highly depend on local contexts.

The previous section found that creative modifications, or improvisation in reference to the import reference model (Jacobs 1984), promoted externalization and combination processes at the two model TVET institutions. The research found the following improvisation episodes in the Dong Nai MHRD Project. First, the two model TVET institutions decided to develop stand-alone courses for 5S, which do not exist even in Japanese technical colleges or industrial high schools. Second, lecturers at those institutions developed teaching materials and tools for the 5S and safety courses, such as a handout for the 5S LEGO game, reusable worksheets for risk assessment exercises, and hand-made equipment for the safety experience rooms (see Section 4.2.1). Healthy competition between the two institutions promoted this incremental innovation. Finally, they developed ToT programs through which trained Vietnamese trainers transfer their knowledge of 5S and safety, teaching skills, and teaching materials that include sufficient local examples to other

Vietnamese lecturers.

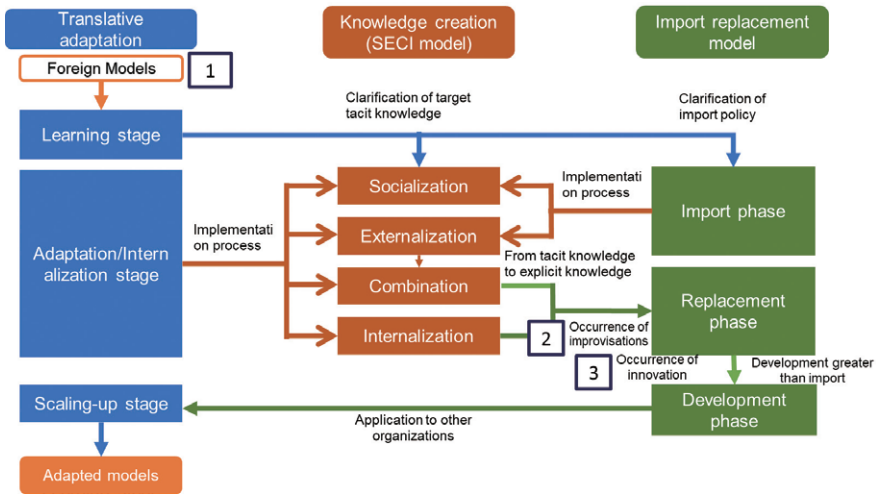
The research findings identified three key elements for promoting improvisation. First, it is important to keep space for counterparts to demonstrate their improvisation or creativity while maintaining a shared vision for project objectives. To achieve this, donors and foreign experts have to be flexible and open to new ideas, as is also discussed in Chapter 5. Furthermore, foreign experts need to keep modifying their intervention strategies, gradually stepping back from direct intervention, as done by this project's Japanese experts. Second, the confidence that comes from successful experience promotes improvisation. For example, the two model TVET institutions acquired the confidence to keep improvising measures to improve the 5S and safety courses, receiving positive feedback on the courses from senior institutional leaders, the provincial government, and Japanese companies.

During an interview, LHU Lecturer A, who had recently visited Finland for training, presented his idea for carrying out safety activities by leveraging the advantages of Japanese and Finnish teaching methods in the future. The importance of accumulating small successes is also linked to the discussion in Chapter 3. Finally, innovation through improvisation can be either incremental or pathbreaking. In this case, the two model TVET institutions improvised measures for incremental innovation, which led to scaling-up of the project results. Ensuring the above elements will facilitate translative adaptation in development cooperation projects.

7. Conclusion

This chapter examined the translative adaptation process of the Dong Nai MHRD Project, which was implemented as a development cooperation project led by local stakeholders of Dong Nai province and the Kansai Region of Japan. The project developed and implemented 5S and safety courses and strengthened partnerships with Japanese SMEs which constitute local supporting industries, absorbing experience and knowledge accumulated in Japan through training and technical guidance provided by experts.

The research findings suggest that the following three elements are imperative for translative adaptation, in reference to three theoretical models, namely the translative adaptation process presented in Chapter



Source: Drafted by the authors based on Jacobs (1984); Nonaka and Hirose-Nishihara (2018); Ohno (2024).

Figure 7.2. Relationship of Translative Adaptation, SECI, and Import Replacement Model

2, the SECI model for knowledge creation (Nonaka and Hirose-Nishihara 2018; see also Table 7.1), and import replacement theory (Jacobs 1984) (see Figure 7.2).

First, it is necessary to clarify the specific knowledge (tacit or explicit knowledge) to target 'adaptation' or 'internalization' through policy learning. This is the starting point of the translative adaptation model, as well as the other two models. Targets should be sufficiently broken down to sub-outputs or products supported by a development roadmap, such as how the two model TVET institutions learned about 5S and safety, training process management, and the passion of Japanese experts in the project. Second, the key to 'combination' and 'internalization' of the SECI model is whether 'improvisations' in the replacement phase of the import replacement model occur or not. 'Improvisations' will take place only if counterparts have initiated the process of converting tacit knowledge to explicit knowledge by going through the socialization and externalization of the SECI model.

In this project, the two model TVET institutions improved their teaching materials, training equipment and tools, and teaching methods, taking into

account the characteristics of lecturers and students and incorporating local cases. Finally, when innovations are brought about in the development phase of the import replacement model, dissemination and scaling-up will happen in the translative adaptation process. Innovations can be either incremental or pathbreaking, as shown by how the two model TVET institutions developed the ToT programs, utilizing teaching materials and equipment as well as teaching methods customized in consideration with local contexts.

The inclusion of the above elements will promote translative adaptation in development cooperation projects. Furthermore, the research provides an important implication for the cooperation approach. A hands-on approach may contribute to translative adaptation by counterparts of ODA projects. However, the research findings indicate that the hands-on approach should continuously change based on each stage of translative adaptation. In case of the Dong Nai MHRD Project, Japanese experts provided detailed technical advice in the learning stages but focused on encouraging their Vietnamese counterparts to take the initiative in the adaptation stage, gradually stepping back from intervention in detail. In addition, healthy competition or mutual learning between the two model institutions and self-leaning by respective institutions accelerated improvisation, which is a key factor for promoting translative adaptation. This was particularly helpful for the project, which could not afford to dispatch residence experts in Vietnam (see Chapter 5 for a similar case).

Finally, we found that, even though the project successfully shifted to the scaling-up stage, this does not necessarily mean that all outputs or counterparts achieved translative adaptation. A lesson learnt is the importance of ensuring that all key counterparts complete the knowledge creation process depicted by the SECI model, given that counterparts may need longer time to complete the processes for the development of public institutions than the development of training programs.

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CHAPTER

8

Discussion and Conclusion

Junichi Mori, Izumi Ohno, and Minoru Yamada

1. Introduction

This volume has analyzed the translative adaptation processes of five skills development cases in Southeast Asia. Technical cooperation in each case was provided based on relevant Japanese experience, and included the development of: (i) training process management systems for enhancing industry engagement in TVET (the HaUI-JICA Project in Chapter 3); (ii) national TVET instructor training programs (the CIAST project in Chapter 4); (iii) national skills testing systems (the development of national skill tests in Vietnam and Thailand in Chapters 5 and 6); and (iv) programs to train workers in accordance with local industry skills needs through the formulation of consortium (the Dong Nai MHRD Project in Chapter 7).

The research found evidence of translative adaptation in all five cases. Moreover, some local counterparts working with foreign experts under Japanese development cooperation projects are becoming increasingly aware of the importance of customizing foreign models according to each country's economic, social, and institutional contexts (see Chapters 3, 5, and 7). However, the progress of translative adaptation varies case by case (see Figure 8.1). The evidence suggests that the industry engagement component of the HaUI-JICA Project and the Thai AHRD project have advanced only to the adaptation stage. The development of institutional mechanism for local industry engagement under the Dong Nai MHRD Project and the national skills testing system development supported by SESPP have remained at the learning stage. In contrast, the rest of the cases, namely CIAST, the skills testing component of the HaUI-JICA Project, and the 5S and safety training course component of the Dong Nai MHRD Project have reached the scaling-up stage. Furthermore, even within the same project progress towards translative adaptation differs. For example, in the HaUI-JICA Project, the national skills testing systems

No.	Case	Chapter No.	Japanese model adapted	Country	Translative Adaptation Stage		
					Learning	Adaptation	Scaling-up
1	HaUI-JICA Project (Industry engagement in TVET)	3	Training process management (PDCA)	Vietnam			
2	CIAST project	4	National TVET instructor training program	Malaysia			
3	Development of national skill tests in Vietnam (HaUI-JICA Project/SESPP)	5	HaUI-JICA Project (Machining Center)	Vietnam			
			SESPP (Machining, Electrical, etc.)				
4	AHRDP	6	National skill tests (automotive technology)	Thailand			
5	Dong Nai MHRD Project	7	5S and safety training	Vietnam			
			Institutional mechanism for local industry engagement				

Source: Drafted by the authors.

Figure 8.1. Progress of Translative Adaptation in Selected Cases

component has reached the scaling-up stage. Finally, in the Dong Nai MHRD Project, the development of institutional mechanisms for local industry engagement in TVET remains at the learning stage.

This chapter discusses why the progress of translative adaptation was different in each case, focusing on key enabling factors and development cooperation delivery modes. The next section examines key elements which promote translative adaptation. Section 3 analyzes the relationship between development cooperation delivery modes and translative adaptation, and Section 4 is the conclusion.

2. Enabling Factors for Translative Adaptation

In this volume, we posit that translative adaptation proceeds in three stages: (i) learning; (ii) adaptation or internalization; and (iii) scaling-up or dissemination (see Ohno 2024, Chapter 2). The findings of this research highlighted certain enabling factors which helped the counterparts of development cooperation projects to go through three stages of translative adaptation, as follows.

2.1. Learning stage

The research suggests that the following three factors can help counterparts conduct effective learning as the first step of translative adaptation. First, optimally the learning process should be divided into

two parts: (i) systematic formal learning for explicit knowledge, and (ii) informal learning or on-the-job training to obtain tacit knowledge. Furthermore, at the beginning of the learning process, counterparts should clearly understand what specific knowledge they target for adaptation through policy learning. Targets should be sufficiently broken down to sub-outputs or products supported by a detailed work plan which indicates how those outputs will be delivered. For example, during the Dong Nai MHRD Project, 5S and safety training was scaled up, partly because partnering TVET institutions of the project that have delivered the 5S and safety training developed detailed work plans with lists of sub-outputs using technical guidance from Japanese experts (see Chapter 7). On the other hand, in the same project, the development of institutional mechanisms for industry engagement has remained at the learning stage. A possible reason for this is that the leading government agency that led the partnership development between industry and TVET institutions did not sufficiently understand what sub-outputs or products they should deliver in order to adapt Japanese models for the engagement of local industry with TVET.

Second, learning should not solely be one way from foreign experts to counterparts but it should also include self-learning and mutual learning through which counterparts can deepen their understanding of target foreign models and prepare to convert knowledge to action. For example, CIAST and HaUI adapted Japanese models of TVET instructor training and industry engagement through self-learning, while the two partnering TVET institutions conducted mutual learning during the Dong Nai MHRD Project (see Chapters 3, 4, and 7).

Finally, at the end of the learning process, the target model for adaptation should be selected using a pragmatic approach that takes into account the counterpart's capacity and the economic, social, and institutional contexts. Chapter 3 shows that HaUI selected training process management systems, given their capacity. Counterparts also often proceed with adaptation based on pragmatism underlain by their own logic. Their choice may then go beyond theories or norms formed based on the experience of developed countries. This is how the Vietnamese counterparts selected machining center operations as a target trade for the pilot skill test under the HaUI-JICA Project (see Chapter 5).

2.2. Adaptation stage

According to our research findings, the following three factors are imperative for counterparts to successfully go through the adaptation stage. First, clashes of opinion between counterparts, who have a strong sense of ownership, and foreign experts, are one of the key elements for promoting adaptation. This was seen with the CIAST project, during which foreign experts and counterparts disagreed regarding TVET instructor tasks (see Chapter 4) and with the HaUI-JICA Project, during which Vietnamese counterparts disagreed with foreign experts regarding the selection of target trade for a pilot skill test (see Chapter 5). These clashes, or 'conflicts' (Ohno 2022, 8), should be welcomed as opportunities for counterparts to refine their adaptation strategies and underlying logic. These clashes also encourage foreign experts to adapt their knowledge and experience according to counterparts' requests. In other words, those clashes can contribute to developing a 'co-creative partnership' between ODA recipients and donors (see Ohno 2016), since they will also provide foreign experts with an opportunity to adjust a model that they tried to transfer.

Second, healthy competition and the development of communities of practice among counterparts promote creativity, accelerating adaptation. For instance, the results of the CIAST project have been disseminated through the community of practice expanded by the career progression of trained TVET instructors, some of whom moved to the government, which supervises TVET systems, or other public TVET institutions (see Chapter 4). The two partnering TVET institutions improved 5S and safety teaching methods and materials during the Dong Nai MHRD Project through healthy competition (see Chapter 7). They competed for the development of the 5S and safety courses by showcasing curricula and teaching materials with different comparative advantages. These two factors can be regarded as an extension of mutual learning and self-learning mentioned in the previous section.

Finally, counterparts improvise teaching methods, tools, and others with hands-on technical guidance from foreign experts, while it may go beyond the scope of foreign experts' thought. This improvisation is regarded as

the first step of incremental innovation.[1] For instance, during the Dong Nai MHRD Project, the two partnering TVET institutions improved 5S and safety teaching methods and materials by utilizing materials available in local markets and adjusting them, taking into account the capacity of trainers and students (see Chapter 7). Counterparts are encouraged to promote improvisation when they build confidence based on the accumulation of small successes. For example, partnering TVET institutions in the Dong Nai MHRD Project have kept improving 5S and safety courses based on the confidence formed due to positive feedback from senior management and industry (see Chapter 7).

The research findings suggest there are mindset or emotional changes among counterparts when going through the adaptation stage with the above enabling factors. In particular, a sense of ownership tends to be enhanced. It has enabled many counterparts in the cases introduced in this volume to find ways to adapt foreign models to local contexts. For instance, HaUI has been obtaining skills needs information from industry through partnership activities, such as short-term course for company employees, rather than repeating a skills needs survey conducted during the project supported by JICA (see Chapter 3). Ownership here does not mean that counterparts are overconfident of their abilities though. Rather, they are eager to learn about many models from foreign experts, while at the same time being aware of the right to make their own strategic decisions on how to adapt/utilize them. In the case of the development of HaUI's industry engagement system, they selected and customized Japanese training process management systems after studying other methods, such as DACUM (Developing a Curriculum). Nevertheless, the logic underlying their decisions is not always the same as that of foreign experts, as seen in the selection of machining center operation as the first national skill test for the field of metal machining in Vietnam (see Chapter 5).

Furthermore, this strong sense of ownership tends to be supported or enhanced by confidence in their decision-making abilities and strategies, which is often formed after accumulating small successes. For instance, HaUI has advanced their institutional mechanism for industry engagement with confidence developed based on increased recognition from industry

[1] In the production sites of companies, 'incremental innovation' can be produced through a *Kaizen* approach. See Homma (2024, 329).

(see Chapter 3). The confidence can also lead to passion for their adapted models or themes, for example, as seen in the Dong Nai MHRD Project (see Chapter 7).

2.3. Scaling-up stage

The research findings suggest that the following three factors contribute to advancing to the scaling-up stage. First, government involvement—either national or local level—is essential for accelerating the scaling-up and dissemination of an adapted model. During the HaUI-JICA Project, this led to a difference in results between the industry engagement model and the machining center operation pilot skills test (see Chapters 3 and 5). Even though HaUI delivered both outputs, the pilot skill test became a national skill test with strong government support, while the dissemination of the industry engagement model has been rather limited. When a leading counterpart is a TVET institution with sufficient capacity to lead project activities, it may not need government technical support at the adaptation stage. However, the research findings suggest that government involvement beyond periodic reporting contributes to the dissemination of project results beyond a specific institution. Furthermore, as seen in Chapter 7, the result of the Dong Nai MHRD Project demonstrates the effectiveness of local government leadership in responding to skills needs, which can vary by region (Mori and Stroud 2021).

Second, the career progression of counterparts also contributes to dissemination. In particular, the progression from TVET institutions to government promotes the dissemination of an experimental model, as seen in the CIAST project (Chapter 4). Having government officials who have on-site experience in TVET institutions may also make it easier for TVET institutions to involve governments in the early stage of the translative adaptation process.

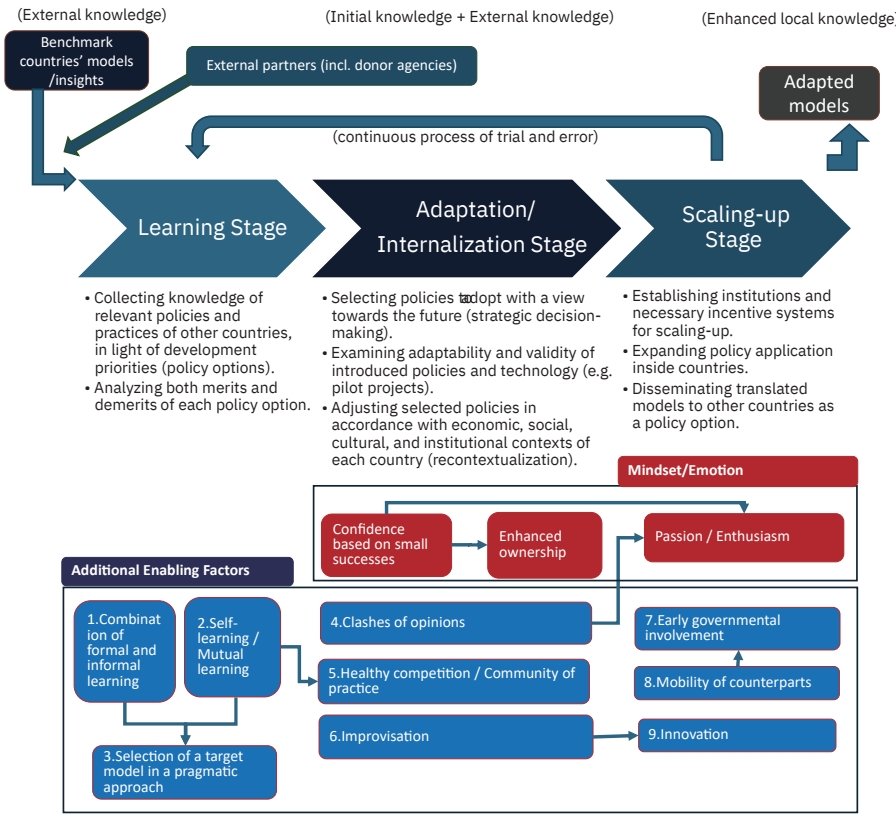
The final factor is innovation, which may happen as an extension of improvisation in the adaptation stage. It can be incremental or pathbreaking, but innovation found in this research was incremental. For instance, during the Dong Nai MHRD Project, the two partnering TVET institutions developed the 5S and safety training of trainer (ToT) programs for other TVET institutions in the province. Such courses do not exist in Japanese technical colleges and industry high schools, so developing them was an innovation (see Chapter 7). While counterparts can still rely on

foreign experts during the adaptation stage, experimented models may not be scaled up or disseminated without innovation led by counterparts. This explains the differences in progress towards translative adaptation in some cases as analyzed in this volume: while the Thai AHRD project remained in the adaptation stage because the project counterparts made few innovations (see Chapter 6), the Dong Nai MHRD Project and the skills test for machining center operation developed under the HaUI-JICA Project reached the scaling-up stage due to innovations spearheaded by the Vietnamese counterparts (see Chapters 5 and 7).

The research findings indicate one emotional element as an imperative in scaling up and disseminating adapted models. Counterparts require passion or 'enthusiasm' (see Ohno and Mori 2024, 262) for its positive effects. For example, in the case of the Dong Nai MHRD Project, this enthusiasm appeared to have been transferred from the Japanese experts to the core project members (see Chapter 7). Enthusiasm is likely to be formed based on confidence enhanced through the accumulation of small successes in the adaptation stage. One challenge is to transfer this enthusiasm to others who have not experienced intensive communication or clashes of opinion with foreign experts, as reported by a core project member of the Dong Nai MHRD Project who has been attempting to train other TVET instructors inside and outside their institutions.

2.4. Summary

The research identified nine enabling factors as well as mindset and emotional changes that promote the three-stage translative adaptation, based on the analysis of five cases (see Figure 8.2). These are largely consistent with three key ingredients of translative adaptation and effective local learning: (i) attention to the uniqueness of each country and society, (ii) country ownership, and (iii) process orientation with room for trial and error (Ohno 2024). Moreover, some of these enabling factors are interlinked across stages. For example, the confidence based on the accumulation of small successes enhances a sense of ownership. Counterparts who have overcome clashes of opinion tend to have enthusiasm for the experimental model, which is an enabling factor for scaling-up. Mutual learning practices may lead to healthy competition or a community of practice among counterparts. Improvisation in the adaptation stage is the beginning of innovation, which is imperative for dissemination and scaling-up.



Source: Elaborated by the authors based on Ohno (2024, 10).

Figure 8.2. Enabling Factors for Translative Adaptation

Furthermore, the above findings imply that the success of translative adaptation depends in part on the extent to which a development cooperation project incorporates those enabling factors. This point will be discussed in the next section.

3. Revisiting a Hands-on Approach

3.1. Delivery modes and translative adaptation

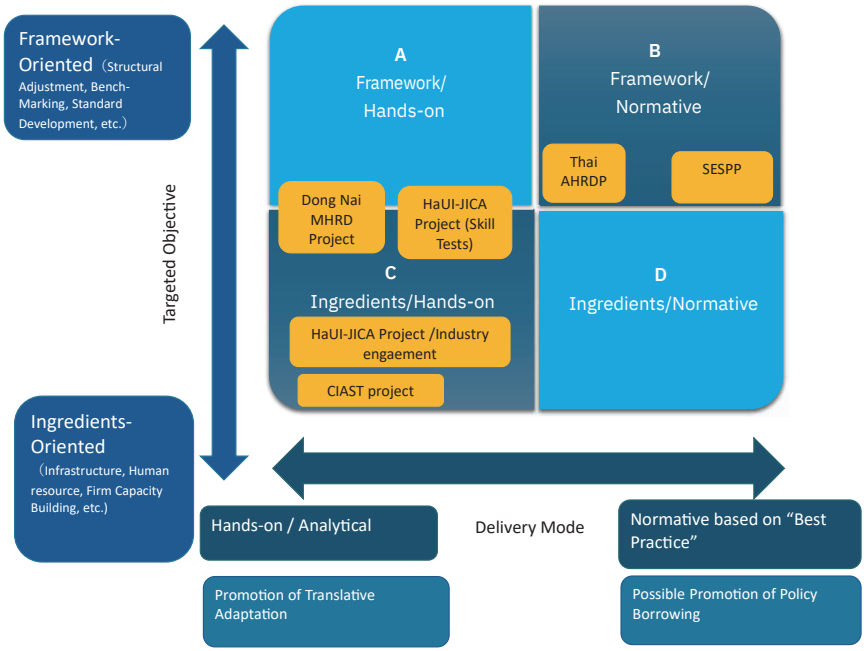
Foreign donors can be catalysts for translative adaptation in developing countries, acting as 'transfer brokers' or 'agents' who bring external knowledge and technologies through policy advice, knowledge sharing, and technology transfer (Stone 2001; Maegawa 2004). The findings of this volume support the assumption that development cooperation delivered

in a hands-on approach, which concentrates on finding field-oriented solutions based on in-depth analysis of the local economy, society, and institutions (Ohno 2013), contributes to translative adaptation. The development cooperation projects delivered in a fully hands-on approach, namely the HaUI-JICA Project (Chapter 5 for skills tests), the CIAST project (Chapter 4), and the 5S and safety training component under the Dong Nai MHRD Project (Chapter 7) guided counterparts go beyond the adaptation stage (see Figure 8.1). Furthermore, the cases examined in this volume mostly focused on the real-sector activities or 'ingredients' (Yanagihara 1998), but the research findings implied the applicability of the hands-on approach to a project which aims to improve the systemic aspects or 'framework.'[2] For example, the machining center operation skills test developed under the HaUI-JICA Project became a national skill test, contributing to the development of a national skills testing system, which is a framework for national skills evaluation.

On the other hand, it was also found that some projects introduced in this volume were not delivered in a fully hands-on approach (see Figure 8.3). The SESPP for the development of the national skills testing system in Vietnam was delivered in a normative approach, in part because the project was implemented through the dispatch of short-term Japanese experts (see Chapter 5). In a short-term mission, foreign experts may consider that they do not have sufficient time to adjust the methods and contents of technology transfer with an in-depth understanding of local contexts. The AHRDP in Thailand, which aimed to develop national skills evaluation systems, was also delivered in a mainly normative approach since it basically imported Japanese skills tests, even though Japanese experts adjusted the skills test questions and created opportunities for learning in preparation for tests by taking into account the Thai context (see Chapter 6). Delivery mode selection may be affected by various factors, but the above findings imply that a normative approach tends to be applied even for Japanese development cooperation projects which target framework development.

Furthermore, even though the hands-on approach may be associated with translative adaptation, its application may not always guarantee that counterparts reach the final stage of the translative adaptation process, namely scaling-up. For example, the dissemination of HaUI's industry

[2] See Chapter 2 for details of the 'ingredients' and 'framework' approaches.



Source: Elaborated by the authors based on Ohno (2024, 10).

Figure 8.3. Mapping Selected Cases by Its Objective and Delivery Mode

engagement model has been limited, even though it has reached the adaptation stage (see Chapter 3). In the Dong Nai MHRD Project, the development of institutional mechanism for industry engagement in TVET has remained in the learning stage (see Chapter 7). This section examines what elements of the hands-on approach can help counterparts advance the translative adaptation process.

3.2. Enhancing the hands-on approach for translative adaptation

The findings on enabling factors in Section 2 also indicate how a hands-on approach can be improved in order to assist counterparts in advancing translative adaptation of foreign models for skills formation. First, the optimal combination of formal and informal learning opportunities is important. For example, one of the reasons for the successful scaling-up of 5S and safety training in the Dong Nai MHRD Project was the combination of systematic formal learning for explicit knowledge and on-the-job

training for tacit knowledge led by Japanese experts with clear outputs and sub-outputs (see Chapter 7). On the other hand, another component of the project, the development of regional institutional mechanisms for industrial engagement in TVET, relied largely on on-the-job training. As a result, this component has remained in the learning stage. This means that systematic formal learning, in combination with informal learning, is useful even in a development cooperation project conducted by a hands-on approach with many on-the-job training opportunities.[3]

Second, even though hands-on technical guidance may facilitate translative adaptation, foreign experts' intervention strategies should continue to be adjusted during project implementation. For example, the two partnering TVET institutions of the Dong Nai MHRD Project accelerated the adaptation of 5S and safety training when Japanese experts purposely reduced their intervention in the details of the training programs in order to encourage the institutions' leadership (see Chapter 7). In addition, HaUI has continued adapting its industry engagement model based on the Japanese training process management system since the completion of the HaUI-JICA Project (see Chapter 3). In short, foreign experts should dynamically and flexibly change their technical guidance strategies as counterparts develop their capacities.

Third, clashes of opinion should be reconciled as much as possible. The case studies in this volume suggest that clashes of opinion or conflicts between counterparts and foreign experts are important, but only if those conflicts are resolved. According to the authors' experience and observations in the HaUI-JICA Project and the Dong Nai MHRD Project, formal and informal discussions often succeeded in reconciling clashes of opinion. An example of the latter was a tea-break discussion during or after formal meetings and conversations during study trips in which both sides spent some days together. On-line meeting tools are very useful for formal meetings, but informal discussion does not often occur in on-line meetings, according to the authors' experience. Therefore, it is very important to secure opportunities for informal discussion, in addition to formal meetings.

[3] Ohno and Mekonen (2024, 132) also mentioned that 'standardized' training is one of the critical factors for successful national movements, which can be regarded as 'scaling-up' in the translative adaptation process.

Fourth, project activities should be designed to produce small successes, which can include products or sub-outputs. Envisaging and pursuing impactful end-results of projects are indeed important, in accordance with the result-based management (RBM) system (UNDG 2011). However, when promoting translative adaptation, we have found that the accumulation of small successes will enable counterparts to adapt and scale up foreign models. For example, HaUI and the two partnering TVET institutions in the Dong Nai MHRD Project have proceeded with adaptation and scaling-up based on the confidence they built with positive feedback from inside and outside the institution (see Chapters 3 and 7). This indicates that small successes tend to motivate counterparts to keep working to achieve larger successes. Jin (2024, 295) called this process a 'circular relationship' between motivation and results in *Kaizen* activities. Even though those small successes may not be necessarily counted as higher-level 'results' of the RBM system, it is still important to keep setting targets to produce small results in project implementation.

Fifth, a space for counterpart-led creativity should be maintained. The research findings suggest that counterpart-led creativity in the adaptation stage leads to the innovation in the scaling-up stage (see Chapter 7), which also functions as another learning opportunity (see Chapter 2). To promote counterpart leadership, foreign experts should be less involved with activities for which counterparts have demonstrated sufficient capacity. Doing so creates a space for them to be creative. The lack of counterpart-led creativity is likely to be one of the reasons that some cases, such as AHRDP and the development of institutional mechanisms for industry engagement in the Dong Nai MHRD Project, did not reach the scaling-up stage.

Finally, the promotion of mutual learning and communities of practice should be integrated into technical cooperation. These elements are especially important for projects which cannot afford long-term resident foreign experts. If there are sufficient opportunities for some counterparts to share their knowledge, challenges, and workable solutions, counterparts will be able to proceed with adaptation and dissemination even without resident foreign experts. This is one of the key factors which explains the difference between the Dong Nai MHRD Project and SESPP, both of which have relied on the short-term missions of Japanese experts. The former reached the scaling-up stage through the promotion of mutual learning among partnering TVET institutions, while the latter has remained in the

learning stage. Furthermore, it is desirable that communities of practice or mutual learning networks be maintained in the long run beyond the project implementation period. This can be done through a broader framework of bilateral economic cooperation (see Ohno and Mori 2024) or networking between those with similar experience, interest, and enthusiasm through thematic training programs[4] or the development of alumni societies of graduates or trainees (see Ohno 2017).

Foreign donors and experts can facilitate mutual learning by providing not only success stories but also challenges and possible solutions, from which developing countries can learn a lot of lessons. For example, HaUI and two model TVET institutions in the Dong Nai MHRD Project have been striving to encourage their lecturers to actively engage in the development of partnerships with industry, but some of them tend to hesitate to put significant effort into industry engagement due to time constraints (see Chapters 3 and 7). This is a common challenge in developed countries as well. Therefore, sharing the experience of trial and errors from developed countries assists developing countries to produce viable solutions (in their social, economic, and institutional contexts), as HaUI established the Center for Enterprise Partnership (CPA) designated for industry engagement, after learning the committee-based industry engagement mechanism in Japan (see Chapter 3). In this sense, a lack of sharing trial-and-error stories may be one of the reasons that the institutional mechanism for local industry engagement based on the consortium model in Osaka has not reached the scaling-up stage in Dong Nai province of Vietnam (see Chapter 7).

In short, the integration of the above elements with a hands-on approach will help a development cooperation project systematically promote translative adaptation in the field of skills formation. The above measures can be applied selectively, even if the implementation period of development cooperation projects is shortened and it becomes difficult to attach resident foreign experts on a long-term basis.

[4] For example, JICA has been providing various thematic training programs entitled the 'Knowledge Co-Creation Program (KCCP),' by inviting trainees from various regions. See JICA (2024).

3.3. Adaptation required in transfer agent

The research findings imply that adaptation is required not only for the counterparts of development cooperation projects but also for donors and foreign experts who act as a transfer agent for foreign models in the following ways. This mutual adaptation makes development cooperation a 'co-creative partnership,' which benefits both ODA recipients and donors (see Ohno 2016).

First, foreign experts must attempt to understand the logic underlying counterparts' adaptation strategies by respecting their ownership of the project. Research suggests that counterparts' logic may not necessarily follow the standards or principles of foreign experts, which are usually formed based on their experience in developed countries. For example, HaUI, supported by the Vietnamese government, insisted on developing a pilot skill test for machining center operation contrary to the Japanese experts' proposal to start with skill tests for the operation of conventional machine tools (see Chapter 5). Although their proposals sounded irrational to the Japanese experts, understanding their logic and respecting their ownership enabled HaUI to advance a pilot test as the first national skill test in the field of machining. This does not mean that foreign experts should simply agree to any counterpart proposal, since clashes of opinion are also important (see Section 2.2). However, when they realize that the suggestion of counterparts is supported by a logic based on the local context, foreign experts need to adapt themselves and concede to their counterparts' proposals on a case-by-case basis.

Second, although a hands-on approach may contribute to translative adaptation, foreign experts should take a hands-off approach in some project aspects in order to promote counterpart leadership and creativity. For instance, the lecturers of two partnering TVET institutions started demonstrating their leadership and creativity in improving teaching materials when the Japanese experts involved stepped back from intervention in detailed activities (see Chapter 7). This may make sense theoretically, but it can be difficult practically, especially when wide knowledge or capacity gaps exist between foreign experts and counterparts. For example, due to this dilemma, AHRDP experts, who mainly come from industry, had to lead most project activities, including the adaptation of Japanese national skill tests. As a result, the project did not reach the scaling-up stage, in contrast to the case of the national skills

test development for machining center operations in Vietnam in which counterparts led project activities with technical guidance from Japanese experts (see Chapters 5 and 6). There is no easy way to solve this dilemma, but, at a certain stage of the project, foreign experts need to leave some details for counterparts to handle and let them experience the process of trial-and-error.

Finally, donors and foreign experts need to be aware that translative adaptation is a dynamic process. For instance, even though counterparts have adapted Japanese training process management processes and its national skill tests at present, this does not guarantee that Vietnamese counterparts will stick to those models (see Chapters 3 and 5). They will continuously elaborate the adapted models by learning about other countries' cases. Therefore, donors and foreign experts must realize that counterparts will make their own choices on whether they will continue to adapt the models they transferred, modify their courses to reflect other countries models, or develop their own unique or hybrid model. Eventually, developing countries do not see the need to categorize their system as a particular type developed by donor countries (see Chapter 5). Accepting unexpected outcomes might be a slightly painful experience for foreign experts and donors who are often confident of the models they transfer. However, this can be a valuable learning opportunity for them. In fact, the time that the authors find the most rewarding in developing cooperation is when counterparts created innovative products or models beyond the scope of our thought.

In short, foreign experts must continuously adjust their technical guidance strategies and provide prescriptions suitable for each country's skills formation system, while ensuring the quality, effectiveness, and impact of results. To achieve this, it is ideal for them to have sufficient knowledge of skills formation and regional economic, social, and institutional contexts, although it may be challenging to find such experts all the time. Therefore, technical experts also need to keep learning regional contexts from counterparts or other experts, just as counterparts are learning technical knowledge from them. This 'co-creative partnership' may benefit donors in the long term (see Ohno 2016).

4. Conclusion

This volume has analyzed the translative adaptation processes of development cooperation projects in the field of TVET in Southeast Asia, based on the theoretical framework that includes three steps counterparts go through to adapt foreign models: learning, adaptation, and scaling-up (Ohno 2024). The research found evidence of translative adaptation in all five cases and an increasing awareness of its importance among the counterparts of most selected projects.

On the other hand, the research findings indicate that each project, or its components, is in various stages of the adaptation process. Progress depends on whether counterparts have experienced or acquired some knowledge or other factors that enable them to continue the translative adaptation process. These include: (i) self and mutual learning in the learning stage; (ii) a strong sense of ownership, clashes of opinion, and healthy competition in the adaptation stage; and (iii) early involvement of government and innovation in the scaling-up stage. These elements also indicate how a hands-on approach for technical cooperation can be enhanced to promote translative adaptation.

Furthermore, adaptation is required for not only counterparts but also donors and foreign experts who act as transfer agents. In order to promote translative adaptation, they must continuously adjust their intervention strategies and develop their capacity for providing suitable prescriptions for each country's skills formation system. In particular, donors and foreign experts need to be aware that translative adaptation is a dynamic process. While some counterparts may choose to adapt Japanese skills formation models, they will keep customizing them and may end up adapting other countries' models or develop a unique or hybrid model, based on their circumstances. Eventually, developing countries may not see much necessity to categorize their system as a particular type.

This research also suggests the need for further analysis of translative adaptation mechanisms. One key element is a strong sense of ownership, which is a driver of translative adaptation, as shown by the results of the case studies in this volume. The research found that counterpart ownership became explicit or enhanced through Japanese development cooperation projects. However, a question remains—how can we facilitate translative adaptation processes if counterparts demonstrate little ownership

throughout a development cooperation project? This is a critical question for projects targeting skills formation, for which there is no 'one-size-fits all' model (Eddington and Toner 2012, 22; Dobbins and Plows 2016, 12). Skills formation systems can vary depending on industry characteristics and the institutional contexts of each country or even locality (Mori 2019; Mori and Stroud 2021). Furthermore, the roles of TVET differ by: (i) industrialization and skills demand progress; (ii) degree of higher education expansion; (iii) expansion and quality of general education; and (iv) social norms and recognition of TVET (Mori and Ohno 2021). Therefore, each country has to adapt its skills formation model, including TVET systems, considering those factors. When a country or region does not demonstrate ownership at all, it may be that technical cooperation in a normative approach is an alternative. However, this may not lead to the development of a sustainable skills formation model, since the simple import or borrowing of other countries' models will not work in the long run (Ashton and Green 1996; Allais 2010).

It is hard to know whether counterparts' sense of ownership can be developed through technical cooperation or if it is an innate characteristic. Nevertheless, our research findings imply that there is a group of people who are eager to improve their skills formation systems through learning and adapting other countries' models, even though they might not be in the majority or have political power. We also found that step-by-step achievement and accumulation of small successes can contribute to confidence building, leading to fostering of ownership. Therefore, donors and foreign experts must identify and assist those who are striving to improve skills formation models in national or local governments, TVET institutions, employer organizations, worker organizations, or other social partners, while persistently attempting to convince their senior leaders to support these initiatives. In this sense, there is always a need to strive for breakthroughs to enhance counterparts' ownership of a development cooperation project and their willingness to lead the translative adaption process. It is also important to pay attention to the process of externalizing 'tacit' knowledge and creating 'explicit' knowledge to share with wider stakeholders (Nonaka and Hirose-Nishihara 2018). For this, a broader knowledge co-creation platform beyond a specific project is also needed (Ohno 2016, 2017).

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