

Policy Design To Support The National Strategy Towards Lessons Learned In Human Resource Development From Taiwan To Thailand

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Abstract

Human resource development involves all sectors: the public sector, the private sector and communities. There must be human resource development plans in businesses or organizations. The public sector must focus on its human resource development plan starting from political officials and government officials to set up strategic planning for national development. Meanwhile, Taiwan is considered as an example of making human resource development policy to achieve the national development strategy. To understand human capital development, it leads to policy design that is consistent with the current concept of Thais 4.0 in particular. However, it is not just being a person who can use technology, but it would probably mean more than that. Importantly, Thais 4.0 leads to lessons learned by using documentary research and content analysis of human resource development policies to support the national strategy, which is divided into studies in technology and education simultaneously. This leads to policy making as a model to serve as a case study for Thailand's policy implementation today.

Keywords: Policy design, human resource development, national strategy, Thailand, Taiwan.

Introduction

When designing a policy for national strategy development, Thailand needs to make a big change by solving the country's weaknesses and limitations, which have been a long-standing problem. At the same time, a proactive national strategy must be implemented in order to make the most of the country's strengths by focusing on creativity and innovation in production and service processes to increase economic value, such as changing technology and business models as well as people's way of life according to the 12th National Economic and Social Development Plan. Apart from gaining benefits by adding value to goods and services, it also broadly affects quality of life. One of the key strategies is human capital development by promoting cooperation from all parties including the government sector, the education sector, and the private sector in all fields of production and services. The research in the

country must be in accord with the objectives of social development. The private sector will have to get involved by providing funds, specialized knowledge and expertise and other resources, including supporting communities in using creativity to build a quality society (Jedaman, P., Buraphan, K., Yuenyong, C., Suksup, C., & Kraisriwattana, B ,2018).

When going back more than half a century, Taiwan was still a poor country. Monthly income per person was only 2,000 baht, but currently 23 million Taiwanese earn an average income of more than 70,000 baht/person/month, which is 10 times greater than in the past. Before the 1970s, the development of Thailand's and Taiwan's economy was at a similar level. Taiwan has a total area of approximately 36,193 square kilometres, similar to the size of Eastern Thailand, and its population was at 23.603 million in 2019. However, in just four decades,

Taiwan's economy has grown and more developed than Thailand's. Taiwan's population has a per capita income of about 3 times greater than Thailand's and it has already become a developed country. In brief, the main turning point came from changes in overall economic structure, especially the promotion of human resource development to be in line with the national development strategy in three periods which pushed forward Taiwan's economic and social development equivalent to developed countries. During 1952-1962, there were major land reforms and the development of irrigation systems throughout the country. Then, from 1962 to 1986, measures were taken to promote SMEs to play a role in supply chain and an important part for export, and from 1986 to 2000 (Chen, 2019) industries were upgraded to the next level using advanced technology to add value to products, with the government allocating tens billions of US dollars annually to technology development and industrial upgrading. In order to develop the country quickly, Taiwan then needs human resource development policies implemented through educational development policies. One-fifth of the national budget is for the development of education, science and technology (San, G., & Intarakumnerd, P., 2021).

Therefore, as Thailand is entering New Economy or Knowledge-based Economy, it is necessary for Thai people to adapt and develop their own capacities in all aspects, including economy, society, politics, and environment by focusing on making full use of people's capacities, especially knowledge and diversity skills development. People should be educated and trained continuously throughout their lives and to be able to access advanced knowledge and skills by themselves. This is based on a combination of economic growth and using the country's advantages in terms of biodiversity, having ancient arts and culture as foundation of Thai way of life to lead to sustainable development by studying the policy design so that Thailand can apply and adapt it to suit its own context (Kohpaiboon, A., 2020).

Research Objective

To study guidelines of policy design to support the national strategy towards lessons learned in human resource development from Taiwan to Thailand.

Research tools and methods

Documentary research was used in this study, with data collection from primary literature such as speeches, statements, foreign policy documents, and from secondary literature such as academic books, articles, newspapers, journals and other related documents by using content analysis to analyze data.

Literature review

National strategy development

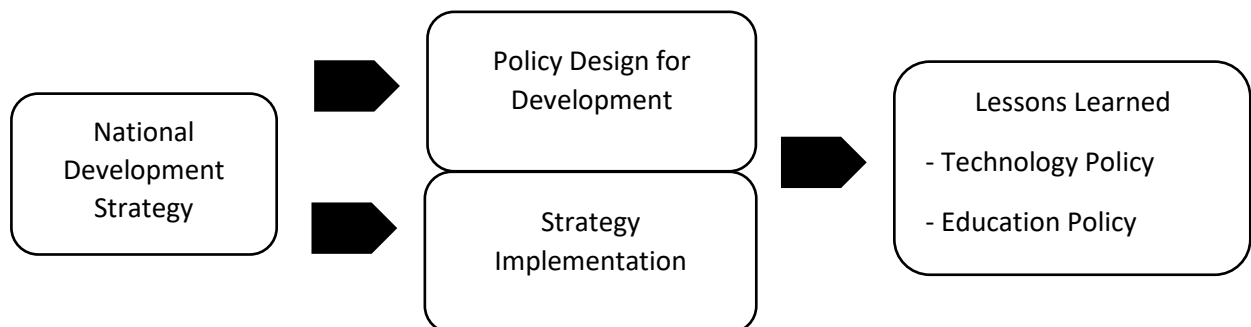
The world of industries is entering a new revolution known as Industry 4.0, a major transformation. "Industry 4.0" takes its name from Germany's 2013 national industrial policy. The concept is that our world will enter the Fourth Industrial Revolution within the next 20 years. This has alerted many countries to the impacts that will come after because nowadays every country in the world is connected without borders in all dimensions, including trade cooperation, cooperation in infrastructure development, economic and social cooperation, etc. On the other hand, there will be more and more competition. Taiwan began to develop the Productivity 4.0 strategy in 2015, setting a budget of NT\$36 billion. It is set as a key strategy to keep up with other countries' competition, and Productivity 4.0 is expected to be the key to optimizing supply chain of modern industries in Taiwan, as well as promoting innovations within the country. Its goal is that within 10 years, Taiwan's goods and services will play an important role in the global trade. By 2024, the country will be able to increase GDP from manufacturing industry by NT\$10 million, or about 10.7 million baht, or an increase of 60% compared to 2014, which is the year before Productivity 4.0 began. Taiwan views the development of Industry 4.0 as a key strategy to enhance productivity in a new context because manufacturing processes in Industry 4.0 will be much more intelligent and efficient. This greatly helps to produce various types of products and services according to customer needs with smaller number of workforces, in line with the country's entering aged society. Therefore, Industry 4.0 in Taiwan is then called Productivity 4.0 (Lin, K. C., Shyu, J. Z., & Ding, K., 2017).

The Productivity 4.0 program was started with Taiwan government's efforts to develop the country's manufacturing sector, which was mostly small and medium-sized enterprises and at Industry 2.0 (Mass Production), to move up to Industry 4.0 (Mass Customization (CPS) or Productivity 4.0. The Executive Yuan or the Government of Taiwan has announced Productivity 4.0 Development Program, a 10-year long-term plan. The expected outcome is a shift from Automatic Production to Intelligent Production, and a shift from Efficiency-driven Economy to an Innovation-driven Economy. The Executive Yuan has set a vision in 3 areas: 1. Industry. Create innovation and industrial change; 2. Techniques. Create their own technology, not relying on other countries; 3. Personnel. Create experts in modern industries (Gammeltoft, P., & Sornn-Friese, H., 2005).

With the Human Resource Development policy, Taiwan must accelerate building up its workforce with technological knowledge. Taiwan will need to increase its global market share in supply chain through its own brand, not being an original equipment manufacturer. While competing on world markets for production of goods and services based on Industry 4.0 technology is ongoing, Taiwan must make the three following things most efficient and effective: 1. Technology development for Productivity 4.0 such as the technologies that create smart manufacturing and industrial robots, high-speed signal technologies and controls from the Internet of Things, as well as Big Data analytics

technologies; 2. Application development for innovations in advanced industries and software development used to support technology for Production 4.0; 3. Create Smart-tech Talent by integrating a collaborative approach between research agencies in the education sector and in the industrial sector (Lee, P. C., & Su, H. N., 2015).

Policies for human resource development then must be adjusted to be in accordance with the national strategy. Initially, labor demand and labor were inconsistent. At the beginning, Taiwanese people preferred going on to senior high schools and then continued their education at a university level, where graduated people were equipped with skills that industrial factories do not need. As a result, the Government of Taiwan has placed emphasis and great efforts on educational development in technology and education because it is believed that if the quality of education can be improved and salaries of vocational graduates can be raised, people will study in vocational schools more, and this will have more people meeting the demand in labor markets. Taiwan finally succeeded by reducing support for the academic system but driving standards and quality of vocational schools. As for university level, science and technology programs are encouraged to be opened for students, as well as offering courses that allow more graduates from vocational schools taking part to improve their skills. Taiwan is now able to solve the labor shortage problem in the industrial sector and can develop the country's industries (Greene, J. M., & Ash, R., 2007).



Research Framework on policy design to support the national strategy towards lessons learned in human resource development from Taiwan to Thailand

Study results

Taiwan's achievements in developing human skills come from cooperation between educational institutions and business entities with a common goal according to the following cooperation:

Technology policy

A major turning point happened in 1973 when the Taiwan government wanted to shift its industrial system from being an original equipment manufacturer to advanced industry by setting up the “Industrial Technology Research Institute (ITRI)” to develop electronic components for the industries of the future (Lin, O. C., 2002), inventing its own chip manufacturing technology under the operation of Taiwan Semiconductor Manufacturing Company (TSMC) in 1987. It produces chips for global companies such as Apple and more than 400 companies around the world. Budgeting on research and development is up to 3.3% of GDP, which is 4 times greater than Thailand's. During 1982 - 2013, ITRI was able to establish up to 89 companies and also enabled to pass on 681 technologies to outside private entities (Han, P. C., 2007). As for economy, trade and investment policies, Taiwan's 2016 development plan aims to drive innovations and new businesses, including exporting products and services, promoting and encouraging domestic investments, pushing 5+2 industries (The “Five Plus Two” Industries) forward; focusing on the development of 5 industries, namely environmental conservation, Silicon Valley of Asia, biotechnology, national defense, and intelligent machinery, plus 2 industries: New Agricultural and Circular Economy (Hauge, J., 2020).

The government started piloting 7 targeted industries which include E-resources, Metal Transportation, food processing machinery, apparel, services, retails and logistics. While in the agriculture sector, the government has focused on Biotech, Exquisite Agriculture and Precision Agriculture. The Government of Taiwan aims to aid about 100,000 small and medium-sized enterprises or about 10,000 a year under an annual 4-billion-baht budget. The main approach of the Productivity 4.0 program helping business transformation is technology integration related to Intelligent Machinery, Internet of Things, Technology and Big Data Application, starting from Maturity Assessment through 4 groups of evaluation criteria: Operational Status Classification, Corporate Excellence Evaluation, Total Excellence Evaluation, and Consultation Programs and Service Items such as training or other measures supported by the government. There are 48 questions with 480

points in total (Cheng, J. M. S., Blankson, C., Wu, P. C., & Chen, S. S., 2005). The analysis results will lead to transitional process design towards Productivity 4.0 systematically. There will be also an evaluation from external experts as a final step. Besides, the government has revised regulations that hinder innovations and entrepreneurs by adjusting funding requirements to attract foreign investors, announcing the Third-Party Payment Act, which allow companies to act as middlemen in financial transactions such as allPay Third-Party Payment CO., Ltd., Pay2go Co., Ltd., Gash Plus, and established the R.O.C. Rapid Innovation Prototyping League for Enterprises (TRIPLE) to change from creativity to production. It is a platform that opens up for ideas from people around the world and there is Taiwan Innovation and Entrepreneurship Center in Silicon Valley as its support (Lau, L. J., 2002).

Overall, the Government of Taiwan has implemented its policies seriously and continuously in pushing the Productivity 4.0 strategy forward to achieve its planned goals. The strategies to drive Productivity 4.0 are systematically planned and moving in the same direction, with a clear strategic plan and monitoring and evaluation for continued strategy adjustments. Taiwan's big goal is to increase GDP per capita in manufacturing industries to NT\$10 million by 2024. There is also a policy to attract foreigners to fill the gap in Taiwan's staff shortage by pushing Foreign Professional Act forward (Oxford Analytica, 2015). Its main content is to relax the regulations related to immigration, a work visa, immigration rules and regulations, and to add special privileges to experts from all over the world in 8 fields which include technology, economics, law, education, arts, culture and sports, architects, defense industry and finance. These professionals can also apply for the Employment Gold Card with the National Immigration Agency. The Government of Taiwan focuses not only on specialist groups but also on foreign blue-collar workers, another important group to Taiwan's industries since a large number of factories still need workers to drive production. According to the data from the Department of Labor in August 2021, there were 694,788 foreign workers in Taiwan, most of them were from Indonesia, Vietnam, the Philippines and Thailand respectively, with

Indonesia and Vietnam occupying more than 70% of the foreign labor market in Taiwan. In recent years, minimum wages have been increased steadily. At the beginning of 2021, Taiwanese workers' wages were increased from 23,800 NTD to 24,000 NTD, and the minimum wage increase was discussed and adjusted again on October 10, 2021 (Cheng, T. J., Haggard, S., & Kang, D., 2020). In 2022, workers are likely to receive up to a 6% minimum wage adjustment from 24,000 NTD to 26,000 NTD (Chang, A. Y., & Cheng, Y. T., 2019). In addition, there is a public health policy that provides foreign workers with the same health insurance scheme as for Taiwanese. It is another policy that makes Taiwan an attractive destination for foreign workers. The policy of continuously attracting potential Taiwanese abroad and foreigners reflects that Taiwan is well aware of the importance of human resources in driving its economy and transferring technology and expertise from abroad into Taiwan (Negandhi, A. R., 2012).

Education policy

The education system is the heart and the beginning of all things. The educational system in Taiwan is commonly referred to as a 6334 system. This system starts from kindergarten, age 4 - 6, 6 years in elementary school until age 12, and 3 years in junior high school until age 15, then senior high school until age 18, and 4 years in university. Taiwan has 9 years of compulsory education, after which students can choose either an academic or vocational track (Huang, H. I., & Lee, C. F., 2012). Vocational education plays an important role in the development of Taiwan's human resources, which is what we are interested in on this report. Taiwan's economic development after under Japanese occupation was the one that focuses on labor-intensive industries, not on educational goals. As a result, the country's industrial workers had a very low level of education. Since 1950, the Taiwan government has declared free compulsory education to its citizens for a period of 6 years. However, at the beginning, even though free education was available to the citizens, Taiwan faced a large number of unemployment even when people were educated. The main cause of the unemployment in Taiwan's early days was because people were not educated to meet market demand. In the first 10 years of

development, Taiwan's education was not intended for economic development or social development (Ashton, D., Green, F., Sung, J., & James, D., 2002) as education was not aimed at producing skilled labor, but rather for the development of academic knowledge only. Taiwan's students in that time wanted to go on to senior high schools to pursue their study in university but not vocational schools, both vocational and high vocational level. Even with their university academic degree obtained, it does not supply with the right qualifications for skill development (Lee, L. S., 2000). The government solved the problem by expanding more senior high schools, colleges and universities. There are more departments in relation to humanities and social sciences opened up than in applied science and natural science taught at the same level but the vocational education system was not made to be attractive enough for students as it should be. The reason why senior high school and university education are more popular than vocational education is closely related to Chinese traditional thoughts. Chinese people believe that learning through academic approach is more valuable than other works such as labor work, trade, and for this reason, those who go on to commercial schools or vocational schools to work directly in industrial companies are then more often being underestimated than the ones who study academically and head towards university (Wu, W. H., Chen, S. F., & Wu, C. T., 1989).

Another factor that prevents students from going on to vocational schools is that the pay rates of university graduates are higher than those of vocational graduates. In order to address this issue, from 1965 onwards, the Government of Taiwan has set (Chang, Y. C., Chen, M. H., Hua, M., & Yang, P. Y., 2006) the structure of economic development policy starting from human resource development as the key part of economic development plans. The said plan aims that economic development must go together with balancing labor and employment. Therefore, the government has extended compulsory education from 6 years to 9 years and focuses on supporting building vocational schools with the industrial sector's support in order to provide graduated students with skills in demand. For this reason, Taiwan has reformed its education with the following guidelines: 1. Make English a compulsory

subject; 2. Improve and expand higher education; 3. Reform the admission system; 4. Support non-formal education, which is aimed at adults, supporting that lifelong learning is possible and a good thing; 5. Support alternative schools for students with difficulties and unable to study in formal education; 6. Find resources that will enable workers to study or keep continually self-training; 7. Supporting private schools to continuously provide education; 8. Encourage students to be creative; 9. Keep courses short; 10. Support resources and abilities in providing teaching and learning in science and technology; 11. Encourage the government to allocate the educational budget not less than 15% per year. The government has implemented this policy continuously over 20 years later. Support for senior high school is reduced, and colleges and universities are encouraged to focus on training engineers, scientists, technology and entrepreneurial skills and business management skills (Hu, X., Ke, S., & Han, G., 2018). The goal of education at all levels, especially vocational education, is to produce people who meet market demand leading to economic development goals. The government has done everything possible to make vocational education more attractive for students. One of its approaches to attract students is to ensure that vocational school graduates will get better salaries and more job options. The government has set a massive budget and many bills were passed in order to establish a vocational training fund. Companies are compelled to pay into this fund by law 1.5% of salaries paid to employees to enable employees of all companies to use this money to improve their workforce skills (Hsu, C. W., & Chiang, H. C., 2001) and be more in line with technological change. For those studying in technological colleges, they are studying similarly to vocational colleges, especially in terms of practical training. However, the difference is that technological colleges' emphasis is on applied science and technology, which is the middle-level skill of administration and technology. In 2020, almost 130,678 technological college graduates were able to enter the labor market immediately after graduation. In 2020, there were 36 schools of this type and a total of 487,485 students, with the majority of them or 46.3% directly studying an industry, while about 22.6 % counted for commerce and administration programs (Wu, M., Cassim, F. A. J., binti Masrul, S., & Kesa,

D. D., 2021). There is also ranking of favorable universities by entrepreneurs, with separate ranking for technology given to students as an option for admission consideration (Zhang Jiaxiao, 2021).

Concepts of lessons learned in human resource development towards Thailand

Therefore, human resource development is one of the key strategies that will drive the country towards such goals. The government has demonstrated the importance of human resources in the future by developing a labour force strategy in 4 phases, with a duration of 5 years each, starting from 2018. It started from building Productive Manpower towards Innovative Workforce, Creative Workforce with research and development skills to the age of Brain Power. The labor market situation in Thailand is another challenge for the business sector under digital transformation. Many countries have researched and developed people together with technology. Nonetheless they are still facing labor shortages in the field that is in demand. It is time for Thailand to work together to develop human resource systems in organizations to be in line with the goal of bringing the country into the Digital Era where the government promotes key policies like Thailand 4.0, an economic model driven by creativity, innovation, technology and high levels of service to push forward higher domestic income growth (Buasuwan, P., 2018).

Thus, in terms of human resource management policy in the era of Thailand 4.0, apart from adjusting the country to keep up with the global trends where businesses must compete with knowledge, creativity, and innovation, there are many phenomena that will occur simultaneously with the inevitable transition to that era. This leads the public and private sectors to have future foresight, anticipate the unexpected things and be prepared to find a way to suitably cope with their organization. An overall policy is required. All sectors, including the public sector, the private sector, and entrepreneurs, especially SMEs, must have the same vision of where the government's policies will drive them to. Are those potential industries? At the same time, the government sector has to be clear whether the direction going to will meet the needs of the country or not because some

policies are quite abstract; the content is difficult to measure as most of the policies are driven by the private sector. The government sector is only a supporter. Most of Thailand's export industries are in labor-intensive industries, mostly "SMEs" at the 2.5-3.0 industry level involving new technologies and intelligent machines which must be imported. Each business is different in terms of capabilities and opportunities to access capital, and human resource constraints. In addition, how quickly the variables of demand 4.0 will come depends on timing and market conditions, competition and how much consumers are ready to accept (Kankaew, K., Tansiri, E., Waramontri, R., Paethrangsi, N., Kungwol, K., Sitikarn, B., & Charearnit, K., 2022). Nevertheless, Thailand's industrial manufacturing sector in the future may not have much choice due to domestic and regional changes in competition including labor shortage and high aging society, which will be the key factors of business in the future and leaving no choice but to use machines to replace workers. However, whether it will reach a full-fledged robotic stage or not still unknown and may not be necessary in every industry. As for driving plans, apart from the development of high-tech and innovation clusters and the industries of the future, the key factor is involved preparation of Thai people to become a new kind of human who must work in harmony with smart technology as a new dynamic in propelling Thailand forward. It involves the vision of the government sector, the private sector, entrepreneurs that needs to be consistent and mutually supportive (Kumpirarusk, P., & Rohitratana, K., 2018).

Policies presented to support the national strategy toward human resource development

The concept of developing Thailand's national strategy, especially in Thai human resources, is very important. It is not only that Thai people can use technology, but it would probably mean more than that. Importantly, Thai people must have a digital mindset and a digital culture within, as well as having a public mind because we are entering the era of sharing economy, which can be divided as follows:

Workforce development in the public sector involves 1.525 million government officials with missions in different sectors such

as economic, social, security aspects as well as other officers in various state enterprises. They all need to take part in the development. Human resource development will have to begin with the development of the public sector workforce as they are the driving mechanism (Jones, C., & Pimdee, P., 2017).

Piloting through people preparation involves recruiting a group of people who will lead the change, a pilot group, such as middle-level and high-level management and a group of leaders in each sector: the government, the private sector, labor, especially teachers and professors in educational institutions who will be a pilot in the way of "Trainer For The Trainee", creating people who then create humans. In an urgent phase, it is necessary to design training courses which should be short-term courses suitable for each sector and in accordance with the characteristics of each industrial cluster by developing the first group of pilots who will lay the foundation of preparing human resources of the future (Tisdell, F., 2012).

Upgrading disadvantaged workers involves creating opportunities for disadvantaged groups ranging from poorly educated people or the left-behind workers, elderly workers or workers without full capacities, which will create value for those workers and also create economic value, encourage future incubation. This involves the public sector, the private sector and provincial groups across the country to have a vision of skills development and preparation for the new economy. It involves fundamentals, visions, new skills to increase capacities with guidelines such as understanding Thailand 4.0 in the same or similar framework (Puriwat, W., & Tripopsakul, S., 2020) by emphasizing goals and objectives. At present, the government policy sector, executives in government agencies, state enterprises, private organizations, people in the business sector and leaders of organizations that are directly related to labor, have an inconsistent understanding of Thailand 4.0. Before driving the transformation, it is necessary to adjust concepts, attitudes and visions to be in the similar framework as much as possible (Louangrath, P., 2017).

The private sector has to prepare people. Any sector that is able to move forward

can become pilot incubator or learning center. Actions must be made as a joint strategy for both public sector and private sector throughout provinces by incubating the development of each cluster categorized by industries, clusters of services that support industries of SME network, community enterprise, different types of cooperatives which must be incubated and driven by digital economy, innovation and technology.

Policy development on human resource education in educational institutions, curriculum development in accordance with changes, producing textbooks and teaching materials with modern technology to enable students to work with intelligent technology and be able to use creativity, wisdom and innovation (Wittayasin, S., 2017).

Conclusion

To enable a country to have a good economy, it starts with supporting research and development to strengthen existing goods and services to be further developed by combining technology such as food, agriculture, public health groups and medical technology, including tools or devices that use control technology. In addition, entrepreneurs need to be improved to keep up with technology by connecting large groups of manufacturers in the country such as smallholder farmers, small and medium-sized enterprises and research institutes, educational institutions to jointly apply research results to enhance products and services. This must be done in parallel with promoting entrepreneurial society to be able to produce and sell. Besides, producing research personnel in the field of science, engineering and math is quickly needed to respond to exponential technological change. Adjusting different mechanisms must be consistent and continually developed to achieve the desired goals.

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