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論文題目

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ミャンマーの産業発展における高等教育の役割

〈欧文〉

The Role of Higher Education in Industrial Development in Myanmar

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Chapter 1: Introduction

1.1 Background

Higher education and industry are interdependent parts of an economy, and their teamwork at best results in a synergy that can be very productive for a country's economic growth. There are essentially three ways in which higher education supports industry and the national economic performance: 1) the supply of high-level manpower and the updating of those already in the workforce; 2) research and development; and 3) technology transfer (Jackson 1990; OECD 1996; Powers 2004).

The major source of highly qualified manpower is an excellent higher education system, which can be used successfully in a country's manufacturing industrial development process to boost its economy. Nowadays, many leading countries have established new universities to produce skilled manpower for different jobs to fulfil the industrial needs. Therefore, a lack of high-level manpower or human resource planning can have a negative impact on a country's industrial development.

Higher education plays very important roles in the provision of technical and professional knowledge and skills for developing applied research to assist the growth of industry and commerce. Manufacturing companies need many good researchers to innovate and create products to satisfy customers' requirements. Many manufacturing companies start their innovation business with R&D (Cohen 2010; Schmidt 2005). Universities can arrange specific training for highly qualified manpower, with research centres playing active roles by providing opportunities for achieving technical knowhow and technology transfer processes. By enabling the growth of knowledge-based businesses or the manufacturing industry, a nation can achieve the greatest assets and brainpower, which can be applied as a very effective tool for securing its economic future.

As Myanmar is an emerging economy and is recognised as one of the least developed countries, it urgently needs to improve its population's living standards. Therefore, universities in Myanmar have to play a very active role in harnessing the higher education system by providing technical and professional knowledge and skills for high-level manpower, research and development, and technology transfer to enhance the country's manufacturing, industrial, and economic performance.

In 2017, Myanmar's new Investment Law was passed to increase the international investments and support and move its economy forward. However, at present, developing the country poses some major challenges, such as developing a strong financial services sector and infrastructure sector. Among them, building a competitive higher education system plays a vital role in preparing the country's young population for the challenges ahead. After over 50 years of isolation, Myanmar's higher education system was a complete failure under military rule, so skilled workers are very hard to find in Myanmar nowadays. The current condition of Myanmar's university education is still underfunded and poorly governed and managed. Therefore, most of the tertiary students in Myanmar are facing the complexities of the system.

In 2013, Myanmar's new government tried to implement a project called "Investing in the Future: Rebuilding Higher Education in Myanmar". The government stated that Myanmar's primary, secondary, and tertiary education sectors must solve the current problems of overcentralisation and the process of decentralisation that is currently underway. Without a dramatic change in the higher education policy over the next few years, Myanmar's human capital in all sectors will have fallen drastically due to the outdated management education

system. To improve these sectors once again, immediate action is required from the governmental sector to upgrade or change the old higher education management policy for those who find themselves unskilled, underemployed, or out of work. Therefore, this study attempts to point out the major challenges involved in changing the governmental policy for the development of higher education in Myanmar.

Myanmar's education system was started by ancient kings and has been seen as important and significant. Myanmar's achievement in education has its roots in Buddhist heritage. In the olden days, most Buddhist monasteries had schools attached. Hence, all male students had to attend the traditional Buddhist monastic education system. The literacy rate was very high even before the British occupation because of the monastery education system (Dhammasami 2004; Hall 1925; Myanmar Times 2019; Thein 2004). In 1866, classroom education was introduced into Myanmar, as a British colonial country, by the British. In 1884, Yangon College was established, and it became the University of Rangoon in 1920. Mandalay College was founded in 1925 and was upgraded to a degree college in 1947. After Myanmar gained independence, medicine, engineering, education, law, arts, science, agriculture, social science, and forestry faculties were established with their respective training courses between 1952 and 1961. Then, after 1962, some of these faculties were transformed into separate universities.

According to the Myanmar Ministry of Education (2013), the major changes in higher education took place with the enactment of the University Education Law of 1964. The law was later repealed and the University Education Law of 1973 was enacted. During the time of the military government's rule (1964–2011), the decline in the quality of education at the university level was due to other factors, which were not unrelated to the inward-looking or closed-door policy of isolating the country from the outside world, especially the West. Between 1964 and the 1980s, the government ordered the universities to use the Myanmar language as the medium of instruction, and the scholarship programmes offered each year by Western democratic countries were mostly rejected. As there were neither sufficient textbooks in Myanmar nor enough capacity to produce them, especially in technical subjects, the whole system failed. The quality of education also suffered from frequent disruptions of learning and discontinuity of the education process, as schools and universities were shut down many times (Thein 2004). The military government closed down all the universities for many years because thousands of students and citizens gathered to demonstrate against the military regime in 1962, 1963, 1967, 1969, 1970, 1974, 1975, 1976, 1987, and 1988 (Fink 2001; Lintner 1990; Maung 1999).

Myanmar is still considered to be an agricultural country. Therefore, over 70% of employment in the agricultural sector contributes about 37.8% of the GDP. Unfortunately, Myanmar has not been able to change the industrial structure of the economy in the last 60 years. However, its neighbouring countries have developed far faster, because they have been changing the industrial structure of their economy for several decades (Dapice 2003; Kudo 2005; Kraas et al. 2017).

Between 1886 and 1948, Myanmar was ruled by the British, and the foreign-dominated industrial sector spread nationwide. Throughout the years 1948 to 1962, Myanmar introduced raw material-oriented import substitution industrialisation as an industrial strategy implemented by its own parliamentary democratic government. As a result, Myanmar could start to achieve moderate industrial performance, but it still operated under a foreign-dominated industrial sector at that time. From 1962 to 2010, Myanmar was badly managed by military rulers. As a consequence, its economic and industrial performance was poor (Fujita et al. 2009; Lall 2016; Larkin 2012). As Myanmar missed many good opportunities to develop into a

modern industrialised country over the decades, industrialisation is an essential element of the whole development of the country.

1.2 Objectives and Structure of the Study

The aim of this study is to examine the relationship between higher education and manufacturing industrial development in Myanmar. The objectives are 1) to identify the problems of higher education in Myanmar; 2) to assess the performance of the higher education government policy; and 3) to identify and analyse the relationship between universities and manufacturing industries.

The structure of this paper is as follows. Following this introductory Chapter 1, **Chapter 2** presents the theoretical framework of the study. The role of higher education and the education system in economic development is examined by comparing and contrasting Myanmar with Thailand and Japan. Moreover, Japan's and Myanmar's job-hunting strategies and the role of higher education are compared and contrasted by studying 20 new university graduates from Myanmar and 20 from Japan who are working in full-time jobs in companies in Myanmar and Japan. In addition, the effect of employees' education background on employment and promotion systems in the manufacturing industry in Myanmar is illustrated by comparing the cases of Japan and Thailand.

Chapter 3 presents the problems of higher education in Myanmar. The purpose of this study is to reveal the main issues surrounding the development of Myanmar's higher education system in recent times. Additionally, the findings will be useful for those in charge of higher education policies as well as prospective students and professors who are considering conducting further research on Myanmar's higher education development. This research asks two questions: 1) what are the solutions to the major problems faced by Myanmar's higher education and 2) how can Myanmar's higher education policy makers reform Myanmar's poor higher education system more effectively?

Chapter 4 discusses the education policies adopted by the government in Myanmar over the years. The main higher education reform undertaken by the Myanmar government aims to develop a world-class higher education system in which universities have autonomy over their own curriculum and governance and the ability to conduct independent research and develop a technical and vocational education and training system. To achieve good outcomes in 5 years, the government introduced the National Education Strategic Plan (2016). This research asks one question: how can the new governmental policy overcome Myanmar's poor higher education system effectively?

Chapter 5, a continuation of Chapter 4, studies the progress of Myanmar's new higher education policy through a case study. In this chapter, the case of the Mandalay Technological University (MTU) is used to compare the National Education Strategic Plan (NESP) and the real progress achieved in this plan. Therefore, this research asks one question: what are the real positive outcomes that have been achieved recently in a university through the NESP?

Chapter 6 presents a questionnaire survey and case study of 100 SMEs. The main objective of this study is to analyse higher education's influence on the improvement of the business performance of manufacturing companies based on primary data collected from a survey of factories.

Chapter 7 describes the issues of 10 cases from 100 manufacturing companies. Three new models of the relationship between higher education and industries' human resource

development are presented. This section seeks positive outcomes for manufacturers in human resource development.

Chapter 8 concludes the entire paper.

Chapter 2: Theoretical Framework

The theoretical framework of the whole paper is provided in this chapter. To gain a better understanding of the role of higher education in industrial development in Myanmar, the education system's role in economic development is studied by comparing and contrasting Myanmar with Japan and Thailand, and the effect of employees' education background on employment and promotion systems in manufacturing industries in Myanmar is also analysed by comparing it with the cases of Japan and Thailand. Although there is a considerable amount of research about these connections in other countries, the uniqueness of this chapter stems from the lack of past studies about Myanmar. Therefore, new models of the Myanmar education system's role in economic development and employment and promotion systems in the manufacturing industry will appear in this chapter.

2.1 Role of Higher Education in Economic Development

Many leading countries are able to use the abilities conferred through higher education to develop their economies successfully. Higher education provides knowledge, which makes a great contribution to economic growth through innovation and by increasing knowledge-based, technical, and soft skills. Higher education also enables countries to identify skill gaps, create special programmes, and build the right skills to improve their economy (Dumciuviene 2015; Foray and Raffo 2009, 2012; Murnane & Nelson 1984; OECD 2016; QS Asia News Network 2018).

Higher education is also considered to be an important contributor to technological capability and technical change in industry. However, higher education alone cannot produce a successful economy. The government still needs to invest in the quality of higher education and highly educated and skilled human resources with an overall policy environment and form some important features of economic performance. The higher the level of education of the workforce in factories, the higher its level of productivity, because more educated individuals are more likely to innovate in factories and increased higher education raises not only their own productivity but also the total productivity. Higher education and the academic skills of a developing country's labour force influence its trade. It has been argued that even "unskilled" workers in a modern factory normally need literacy, numeracy, and discipline, which are acquired in primary and lower secondary school (Lucas 1998; Ozturk 2001; Perotti 1993; Wood 1994). Delays in reforming higher education systems in developing countries can hinder economic growth and poverty reduction. Therefore, the government in those countries should invest heavily in highly educated and skilled human capital, both male and female (Birdsall 1993; Ozturk 2001; Psacharopoulos 1984; Tilak 1989).

In recent years, many countries have realised that investment in higher education capital and higher human capital has a positive impact on the quality of higher education and human capital, which become the main driving forces for technological innovation and economic growth (Deng and Zhao 2018; Lambab 2012; Song 2018). Many scholars have tried to find out how investment in higher education capital can transform knowledge into economic growth in the form of technological innovation and management innovation and identify some influencing factors, for example heterogeneous cognitive skills' impact on GDP growth (Basso and Funari 2014; Becker 1998). For example, the Chinese government and social enterprises have increased their investment in higher education (Guo et al. 2012), such as raising the teaching level, enhancing discipline construction and innovation, and funding scientific research innovation (Calik and Pehlivan 2015). Moreover, the Chinese government uses data on heterogeneous cognitive skills, which are associated with innovation, and the strong

relationship between knowledge production and innovation to highlight human capital, which is closely connected to cognitive skills, affecting the efficiency of regional innovation (Griliches 1979; Lucas 1988). Therefore, there is a direct impact of human capital on economic growth through innovation and a significant impact of human capital on innovation (Paganetto and Scandizzo 2003; Qian et al. 2010).

To produce the critical number of graduates and a skilled, employable workforce, a country requires an inclusive, high-quality, and equitable higher education system. To be able to advance the technological progress in the production of tradable goods and services in a country, it is necessary to strengthen its economy to create a continuous supply of knowledge-intensive, talented, and high-waged human capital (Barra and Zotti 2017; Selvaratnam 2016; Zhang and Yao 2010). There has been much discussion about whether the increase in knowledge-based, talented, and high-waged human capital could be attributable to the presence of a university (Bleaney et al. 1992; Caffrey and Issacs 1971; Elliot et al. 1988; Florax 1992; Goldstein and Drucker 2006). There is no doubt that more universities must grow to create human capital and accumulate knowledge to produce positive effects on the local economic development and a higher growth rate of the economy (Martin and Sunley 1998; Romer 1994). Moreover, universities play an important role in developing knowledge and innovation through research and technology transfer, representing relevant channels for knowledge transfer through education and human resource development. Therefore, universities play a crucial role in a knowledge-based economy, which contributes to wealth creation, and they are important engines of regional and national economic development (Lambert and Butler 2006; Poti and Reale 2005).

It can be argued that, in societies with greater inequality, there are larger disparities between rich and poor in the human resources invested in children (Breen and Jonsson 2005; Corak 2012; Duncan and Murnane 2011; Solon 2004). Income inequality leads to a disadvantage for poor children attending lower-quality schools when their wealthy peers are in better schools (Garner and Raudenbush 1991; Harding et al. 2011; Mayer 2010). These disparities in education investments create a skill gap between socio-economic groups. Thus, by the end of secondary school, there will be substantial differences in academic abilities (Marks 2014), future aspirations (Sikora and Saha 2007), and a range of other social skills (Erikson and Jonsson 1996; Sikora and Saha 2007). This will have an impact on whether children obtain a bachelor's degree or whether a low-income family can afford tertiary education (Jackson and Jonsson 2013; Jackson et al. 2007). Additionally, having a good education can create greater returns (graduates earn more money than other groups) in more unequal labour markets (Hout 2012). Regarding this matter, family resources become a big issue in supporting children during their search for a good job when labour markets are very unequal (Goldthorpe 2013; Lin 1999). Therefore, policy makers in many countries believe that public subsidies for higher education are high and tuition fees charged by universities are low or even non-existent. However, there is no positive enrolment effect of public subsidies for higher education. Instead, the increasing enrolment is mainly explained by the increasing GDP per capita, and the use of education policy as a tool to increase income equality may be difficult; the theory, as well as the empirical evidence, indicates that there is no simple relation between higher enrolment and lower income inequality (Bergh and Fink 2008). High-inequality countries have more private investment in education, and less public investment may be a better solution to ensure that the next generation has equal opportunities to succeed (Jerrim and Macmillan 2015).

2.2 Education Systems and Economic Development

According to the World Bank (1995), well-run education systems are a major feature of successful East Asian industrialisation. To see how high or low the education levels are in countries, international comparisons are necessary. There are two kinds of variables for comparisons: outcomes (explained variables) and causes (explanatory or independent variables) (Schultz 1988). The following are criteria for judging the “outcomes” of the high or low education levels in a country (Suehiro 2008):

- (1) percentage of the school age population attending school (ages 6 to 11, elementary education; ages 12 to 17, lower- and upper-secondary education)
- (2) teacher–pupil ratio
- (3) teachers’ wage level
- (4) education spending as a percentage of the overall government spending
- (5) education spending per pupil

The following are criteria for judging the “causes” of high or low education levels in a country (Suehiro 2008):

- (1) size of the schoolchild population
- (2) per capita income of the non-schoolchild population
- (3) degree of urbanisation

However, spending more of the national budget on the education sector cannot guarantee the achievement of a high level of education or good economic performance. This perspective is very useful for thinking about the connection between education systems and catch-up industrialisation (Suehiro 2008). University education from the perspective of the labour market or the requirements of industrialisation is very interesting to view as a connection for industrial development (Suehiro 2008). This connection is called the “economics of education” or “the educational sociology of the economy” (Schultz 1988).

One factor of the economics of education is the mutual relationship between education institutions and job recruitment or job-hunting activities. Recruitment is the process of transition from university to workplace through selection and distribution among occupations. The following table shows a comparison of job-hunting strategies and the role of higher education in Japan and Myanmar by studying 20 Myanmar and 20 Japanese new university graduates who are working in full-time jobs in companies in Myanmar and Japan.

Table 2.1 Comparison of job-hunting strategies and the role of higher education in Japan and Myanmar

(1) “Who do you contact when you first start job hunting?” (Multiple answers permitted; %)

<i>Country education level</i>	<i>Family and relatives</i>	<i>Friends</i>	<i>University</i>	<i>Job advertisements</i>	<i>Employment exchange</i>
Japan					
Higher education	55%	80%	50%	10%	5%
Myanmar					
Higher education	55%	66%	14%	26%	0%

(2) Average number of companies visited and time spent on job hunting (%)

<i>Country education level</i>	<i>Average number of companies visited</i>	<i>Time spent on job hunting</i>	
		<i>More than 3 months</i>	<i>Less than 3 months</i>
Japan			
Higher education	18	80%	20%
Myanmar			
Higher education	1	55%	45%

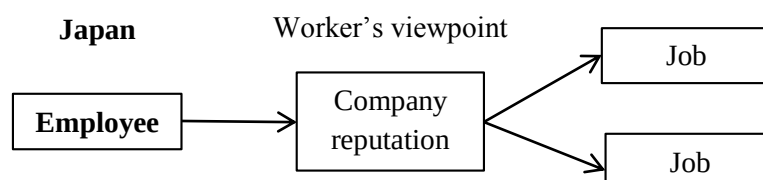
Source: Questionnaire survey by the author in Myanmar and Japan (18–19 April 2019).

Table 2.1 (1) above shows that, when people start looking for jobs in Japan, the rank of major sources of information is friends, family, university, job advertisements, and employment exchanges. In Myanmar, the rank of major sources of information is slightly different from that in Japan, and it includes friends, family, job advertisements, and university. In Myanmar, no new graduates look for a job through an employment exchange.

Table 2.1 (2) indicates that, in Japan, all university students visit many companies (18 companies per student) before obtaining a job. On the contrary, in Myanmar, a very small number of university students show an interest in visiting any company before gaining a job. In Japan, 80% of students spend more than 3 months and 20% of students spend less than 3 months on job seeking. In Myanmar, 55% of university students spend more than 3 months and 45% of university students spend less than 3 months on their job search.

To conclude, the above Tables 2.1 (1) and 2.1 (2) illustrate that only 14% of Myanmar students consider their university as an important source when they are job hunting. By contrast, 50% of Japanese students believe that universities play a very important role in the recruitment process. Japanese universities’ career centres are well organised for providing their students with information about job openings, teaching them how to write CVs, holding career seminars, and offering individual guidance about finding a job. Through these activities, the universities seek to achieve a rapid transformation of their students (Uehara 2016). In addition, few Myanmar students visit companies before graduation. However, in Japan, the average number of companies that students visit before finding a job is 18. In Japan, companies’ rankings are printed every year, showing which companies are the most popular among job-seeking students. The top-ranking companies receive applications from many eager students. Many students in Japan apply to a large number of companies. The author’s survey even showed that some apply to over 50 companies. Naturally, most of the applications are refused, so most students experience repeated rejections (Uehara 2016). Nevertheless, most Japanese students receive a job offer before graduation.

Higher education in catch-up countries is designed to give students the basic knowledge and skills required by the industrial society and then train a large-scale, high-quality workforce (Amano et al. 1994). When students are in the workplace, companies give them more specific skills training. The combination of a highly selective education system and an internal labour market at individual companies generates the workforce required for latecomer industrialisation on the basis of imported technology (Suehiro 2008). This system is related to the perceptions of work that are found among job seekers and factories. The following Figure 2.1 (Cummings and Altbach 1997) shows a comparison between perceptions of work in Japan, Thailand, and Myanmar.



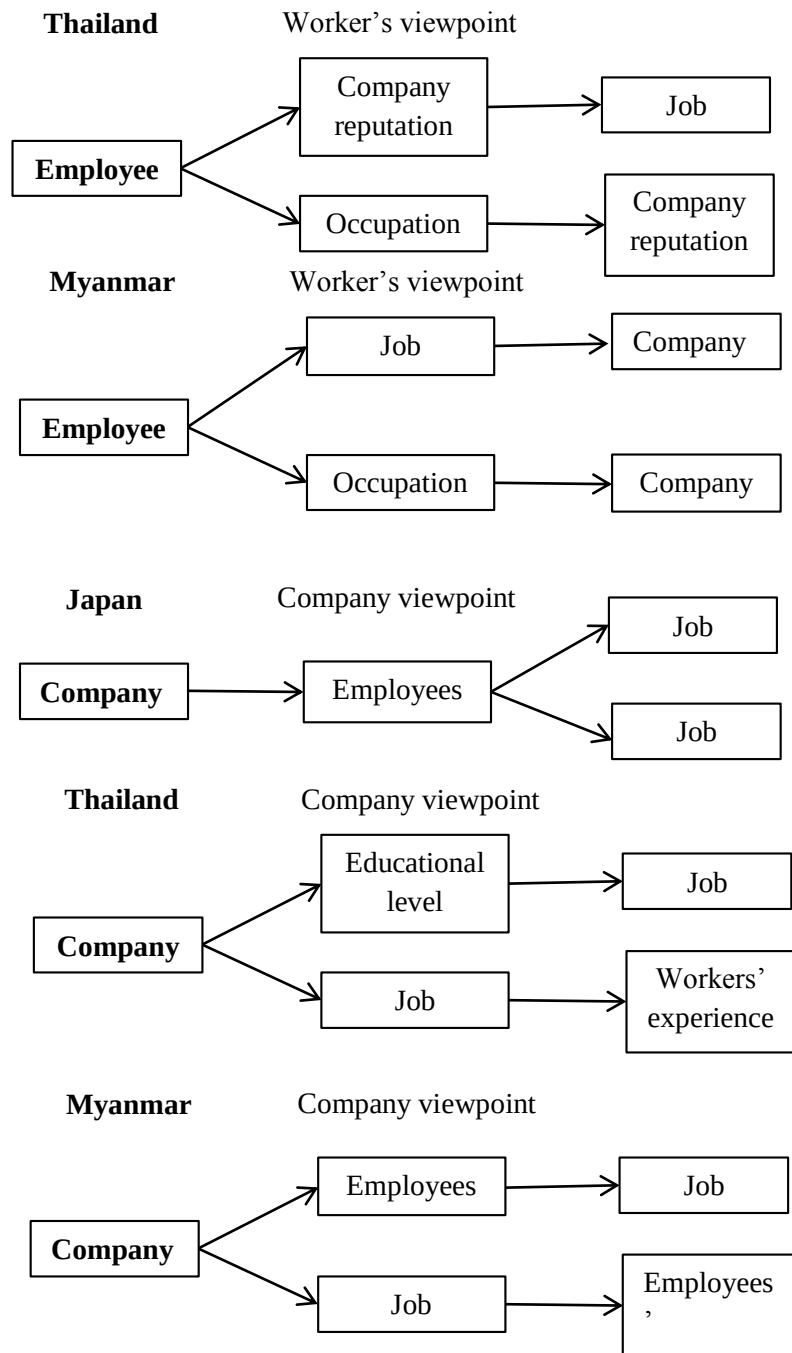


Figure 2.1 Comparison of employee and management conceptualisation of work: Japan, Thailand, and Myanmar

Sources: For the US and Japan, Cummings and Altbach (1997); for Thailand, the author's survey.

According to the above Figure 2.1, in Japan, employees consider which company they would like to work for first and then they start to think about the kind of job that they might occupy in the company. Japanese companies emphasise the employees' academic record, including the degree of prestige of their university, the grades they achieved, and their personality (Suehiro 2000). In Thailand, new employees from a university think about companies rather than occupations, whereas vocational graduates look for an occupation that suits their qualifications (Natenapha 2005). Thai companies sometimes look at university qualifications, ranks of

educational institutions, and grades in their recruitment plan. In Myanmar, fresh graduates from university think about jobs rather than companies, whereas vocational graduates focus on occupations that match their qualifications. Myanmar companies are like Japanese companies in that they study the students' higher education background and, like Thai companies, consider their job requirements first.

According to Amano et al. (1994), the education system can be divided into three types: 1) separate streams or multi-track; 2) diverging midway or fork or comb; and 3) stepped or single-track or pyramid type. A movement from multi-track to single-track education occurs when an economy society develops. The following are the types of school systems to apply when an economy develops; there is a movement from multi-track to single-track education.

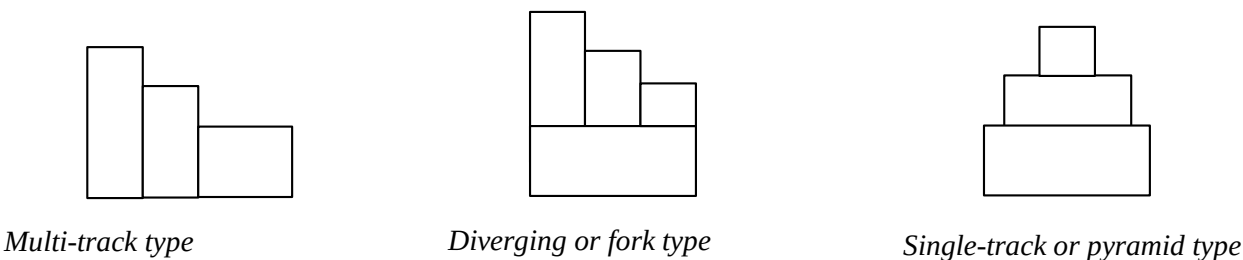
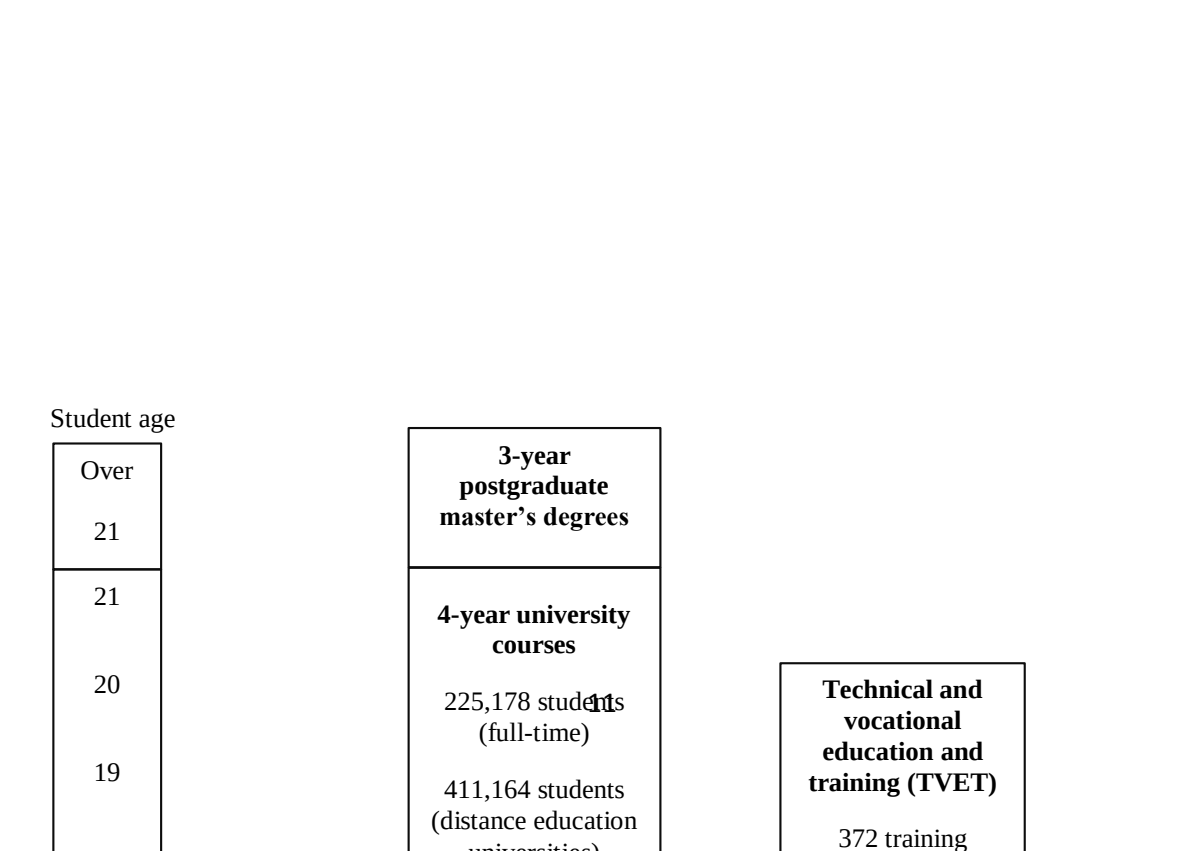


Figure 2.2 Classification of school systems

Source: Based on Amano et al. (1994).

In multi-track education systems, there are separate school systems for different social classes. In diverging systems, students are arranged into different tracks after finishing their elementary education. In single-track education systems, all students have the opportunity for higher-level schooling based on their progress in competitive exams.

In Japan, a single-track or pyramid education system is applied nowadays, whereas a diverging type was used in the past. In the same way as in Japan, Thailand and Myanmar's education systems have moved from the diverging type to the single-track type. The following Figure 2.3 shows the Myanmar education system.

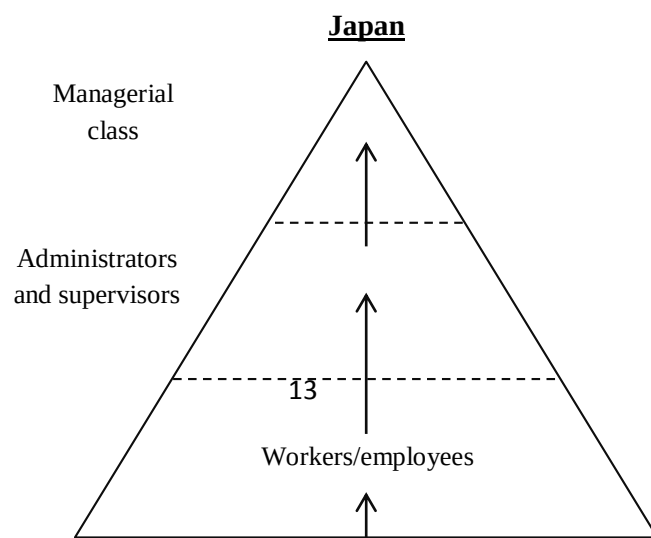


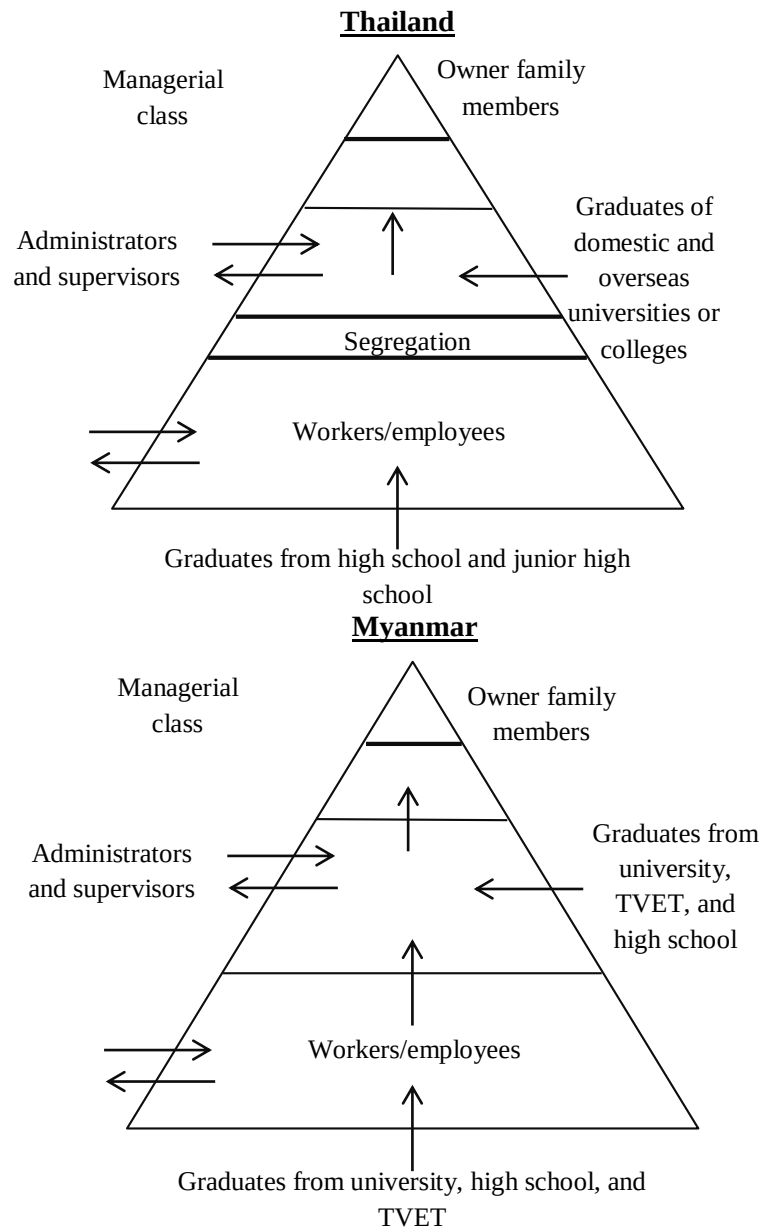
In the Myanmar education system, up to the completion of high school, education is compulsory. At the higher education level, education is divided between the university and the TVET track. Between 2015 and 2016, there were 5.18 million students attending 5-year primary school education (6–10 years old), 2.8 million students undertaking 4-year middle school education (11–14 years old), and 873 thousand students taking 3-year high school education, respectively. The 2 tracks lead to different modes of higher education: 4-year university courses (only public) and technical and vocational education and training (TVET). Another 3 years are required to receive a master's degree.

2.3 Education Background and Employment and Promotion Systems in Manufacturing Industries

In this section, the connection between higher education, labour market characteristics, and promotion systems is studied in particular industries. According to Suehiro (2008), a feature of East Asian countries is that the kind of industries in which a new employee can obtain a job and have the possibility for promotion once employed is based on the prestige of the institutions

that the worker has attended. Many countries have different arrangements for employment and promotion practices based on the education levels of middle school, high school, or university from general workers through middle management to the executive level (internal promotion versus mid-career hiring). The following Figure 2.4 shows the arrangement of employment and promotion practices in three countries (Japan, Thailand, and Myanmar).





Source: Based on Suehiro (2008).

Figure 2.4 The arrangement of employment and promotion practices in three countries (Japan, Thailand, and Myanmar). According to Suehiro (2008), in the above figure, the different lines have different meanings. The thick lines define the boundaries preventing promotion between the general workers, the middle management, and the top executive level. The thin lines show that promotion movement across the boundary is possible to a certain extent. The dotted lines indicate that there is almost no obstacle to crossing the boundary.

In Japan, companies hire new employees from high school or university, and then they can attain higher-level positions through internal promotion. Directors and the president are gradually appointed from the general employees. Therefore, there is only a small chance for mid-career employees from outside the company to obtain a job in a large Japanese enterprise. Almost all Japanese companies use the late track promotion system¹ for their employees, because they believe that the system provides the strengths of operating more fairly and fostering the improvement of skills among employees. In fact, the job trend has changed slightly in recent years, and it seems that, in Japan, more use is being made of the merit system and faster promotions are being handed out to employees who hold university degrees than to high school graduates.

In Thailand, the promotion and selection systems are different from those in Japan. General workers are from high school and junior high school, and there is a small chance of promotion to managerial positions. Companies use the mid-career hiring method for employing people with qualifications (master's degree or above/qualifications acquired overseas). As for executive posts, they are generally monopolised by members of the owner's family.

In Myanmar, companies hire their employees fresh from university, high school, or TVET, then they can attain higher-level positions through internal promotion. Managers and general managers are gradually appointed from them. Moreover, they apply mid-career hiring as a method for hiring people with qualifications (bachelor's degree and TVET or high school) and experience. As in Thailand, executive posts are generally monopolised by members of the owner's family. For example, the following Figure 2.5 shows the employment structure at Lucky Drinking Water, one of Myanmar's biggest purified water factories.

Grading by education level				Remarks
Senior administrator	After employees have been working for 15 years continuously	Bachelor's degree with over 10 years ² experience	U4 General manager	- Promotion from S2 to S4 limited to staff with higher
			U3 Manager 3	
			U2 Manager 2	
			S3 Asst. manager 2	
			S4 Manager 1	

The above Figure 2.5 shows that university and TVET graduates are graded differently from high school graduates. High school graduates are basically appointed to the maximum level of A3. The “A” in these job categories represents the Myanmar word *Achikan* (operation unit). In contrast, university and TVET graduates can rise to S4 in the management (*Siman*). Then, with a combination of higher education and long working experience with outstanding achievement, an S4 employee can rise to the level of U4. The “U” means Usee-Siman (managerial sector).

2.4 Summary

Higher education confers many abilities to develop a nation’s economy successfully, because knowledge can make a substantial contribution to economic growth through innovation and by increasing knowledge-based, technical, and soft skills. However, higher education alone cannot produce a successful economy, so the government needs to invest in the quality of higher education and highly educated and skilled human resources. Higher education of good quality can increase productivity, because more educated workers are more likely to innovate in

factories and increased higher education of individuals raises not only their own productivity but also the total productivity.

A country requires an inclusive, high-quality, and equitable higher education system to produce sufficient graduate students and a skilled, employable workforce. In many countries' societies, there is income inequality between rich and poor students, and this inequality leads to a disadvantage for poor children attending lower-quality universities when their wealthy peers are at better universities. The empirical evidence indicates that there is no simple relation between higher enrolment in universities and lower income inequality. Therefore, high-inequality countries have more private investment in education, and less public investment may be a better solution to ensure that the next generation has equal opportunities to succeed.

One factor concerning the economics of education is the mutual relationship between education institutions and job recruitment or job-hunting activities. Job-hunting strategies and the role of higher education in Japan and Myanmar are studied through a comparison of 20 Myanmar and 20 Japanese new university graduates who are working in full-time jobs in companies in Myanmar and Japan. The findings show that Japanese university students' main sources of information when they first start job hunting are friends, family, their university, job advertisements, and employment exchanges. However, differently, Myanmar students' major sources of information include friends, family, job advertisements, and their university. Moreover, Japanese university students visit many companies before graduation. On the contrary, in Myanmar, very few university students show an interest in visiting any company before they graduate. In Japan, 80% of students spend more than 3 months job hunting and 20% of students spend less than 3 months job seeking. In Myanmar, 55% of university students spend more than 3 months job hunting and 45% of university students spend less than 3 months job searching.

Only 14% of Myanmar students consider their university as an important information source when they start job hunting. In Japan, by contrast, 50% of Japanese students think that universities play a very important role in the recruitment process. Therefore, Japanese universities' career centres are better organised than those of Myanmar universities for providing their students with information about job openings, holding career seminars, and so on to help them find jobs. Few Myanmar students visit companies before graduation, but Japanese students visit many companies before graduation. The average number of companies that Japanese students visit before graduation is 18.1, and a ranking of companies is printed every year showing which are the most popular among job-seeking students in Japan. Top-ranking companies receive applications from many eager students. Thai companies sometimes look at university qualifications and the rank of education institutions and grades in their recruitment plan. In Myanmar, fresh graduates from university think about the job rather than the company, whereas vocational graduates focus on occupations that match their qualifications. Myanmar companies, like Japanese companies, study the students' higher education background and, like Thai companies, look at their job requirements first.

Many countries have different arrangements for employment and promotion practices based on the education levels of middle school, high school, or university from general workers through middle management to the executive level (internal promotion versus mid-career hiring). The findings show that Japanese factories hire new workers from high school or university, and then they can attain higher-level positions through internal promotion. Directors and the president are gradually appointed from the general workers. In Thailand, general workers are recruited from high school and junior high school, and they have almost no chance of promotion to managerial positions. Companies use the mid-career hiring method for

employing people with qualifications (master's degree or above/qualifications acquired overseas). As for the executive posts, they are generally monopolised by members of the owner's family. Myanmar factories hire their employees fresh from university, high school, or TVET; then they can achieve higher-level positions through internal promotion. Managers and general managers are gradually appointed from them. Moreover, they apply mid-career hiring as a way to hire people with qualifications (bachelor's degree, TVET, or high school) and experience. As in Thailand, executive posts are generally monopolised by members of the owner's family.

In summary, this chapter's theoretical study shows the framework of the entire paper regarding the overlapping effect on higher education and manufacturing industries in the modern society, as shown in Figure 2.6.

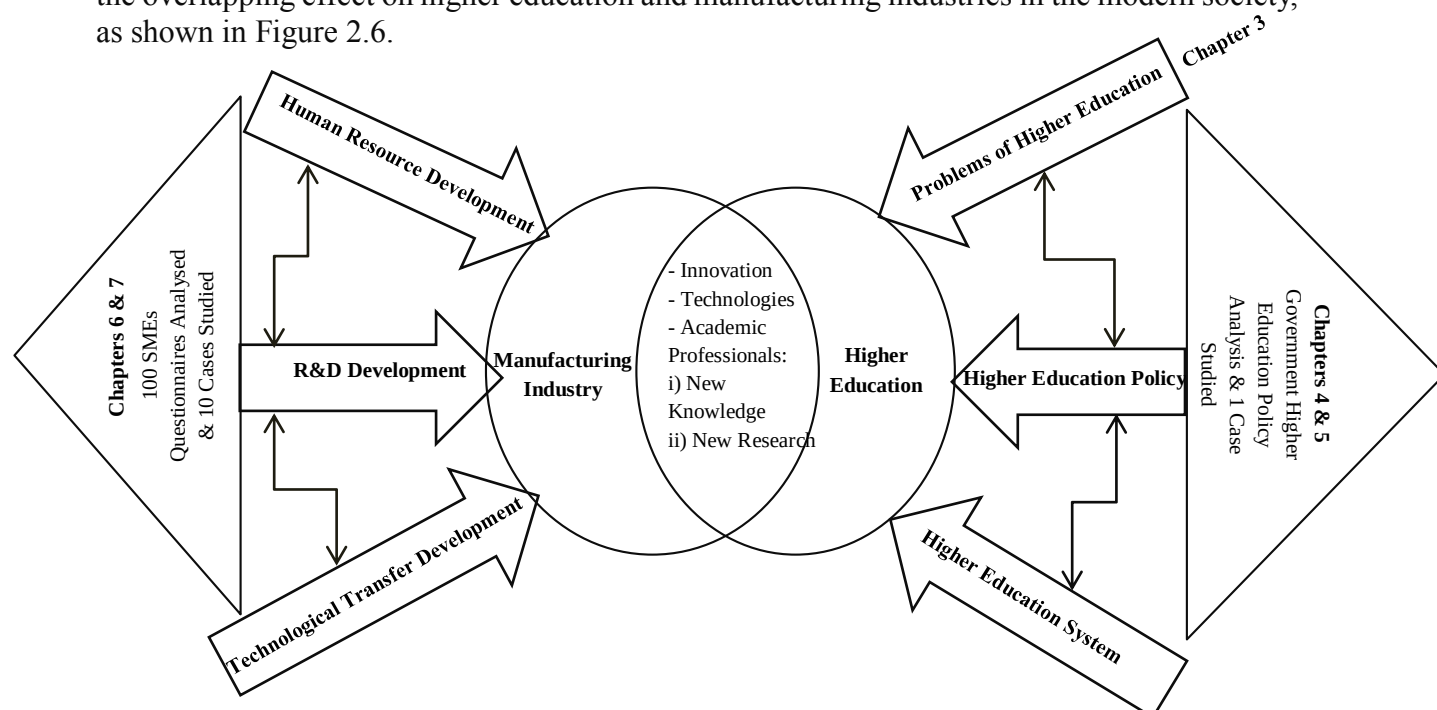


Figure 2.6 A model of the role of higher education in industrial development
Source: Drafted by the author.

The above figure illustrates the connections between higher education and manufacturing industrial development. The key items for these connections are innovations, technologies, new knowledge, and new research. Therefore, these common factors of higher education and manufacturing company development are able to provide technical skills, knowledge-based skills, and soft skills with high-quality products and high productivity levels in plants for a developing nation such as Myanmar. The following Chapter 3 studies the problems of higher education, then Chapters 4 and 5 discuss the government's education policies and present a case study of Myanmar's higher education policy and Chapters 6 and 7 focus on the questionnaire survey and a case study of 100 SMEs and describe the issues for 10 cases from 100 companies in manufacturing industries.

Chapter 3: Problem Analysis of Higher Education in Myanmar

3.1 Introduction

In the modern economy, it is very important for a developing country to build quality and capacity in universities to produce a skilled workforce that is able to create a middle-income

country. Moreover, fundamental capacity building in a developing country must be practised through good universities that place a strong focus on STEM – science, technology, engineering, and mathematics – and specific growth industries. To build these fundamental capacities, universities in developing countries have a strong need to apply a vital resource, brainpower, rather than money (MacGregor 2015; Ramphele and Rosovsky 2015). Additionally, to catch up with modern knowledge-based economies or participate in the globalised environment of higher education, a developing country urgently needs to open more research universities. Thus, research universities play a critical role in the production of the many high-quality academic professionals and experts, high-level scientists, and researchers needed by the economy (University World News 2013; World Bank, 2000).

In Japan, universities play a central role in advanced educational and research activities. Japanese universities contribute to social and economic development through wide-ranging education and the cultivation of human resources with expert knowledge and skills in various academic disciplines and high-level research. For higher education development, the Japanese Ministry of Education guarantees the quality of universities, oversees the internationalisation of universities, deals with social issues, and ensures financial assistance for students (MEXT n.d.).

The major challenge for the developing country of Myanmar is to develop a strong financial services sector, infrastructure sector, and education sector. Building a competitive higher education system plays a very important role, because Myanmar needs a better-educated and skilled young population to move the economy forwards dramatically. The problem is that, after over 50 years of isolation and military rule, Myanmar's higher education system is a complete failure, making it difficult to find skilled workers today. Without a dramatic change in the higher education policy over the next few years, Myanmar's human capital in all sectors will experience a serious decline due to the very outdated management of the education system. Therefore, the purpose of this study is to reveal the main issues surrounding the development of Myanmar's higher education system in recent times. Moreover, this study aims to examine the best ways for Myanmar's higher education policy makers to reform this currently poor system effectively and systematically by comparing it with the reformed Japanese higher education system with the purpose of enabling economic change. Within this framework, Myanmar's higher education system can apply its strong points to establishing a strategic model that points in the right direction for providing a strong vision and breakthroughs in Myanmar's industrial development, rapidly changing a poor nation into a rich one. Additionally, these findings will be useful for those in charge of higher education policies as well as prospective students and professors who are considering carrying out further research on the development of higher education in Myanmar.

This research asks the following two questions:

- (1) What are the solutions to the major problems faced by Myanmar's higher education system?
- (2) How can Myanmar's higher education policy makers reform Myanmar's poor higher education system more effectively?

To answer the research questions, data were collected from experts (e.g., rectors, professors, and heads of universities).

This study is divided into five sections. Section 1 serves as a general introduction to the study. It presents the background and the purpose of the study. Section 2 discusses some theoretical

issues set out by various scholars and researchers. Section 3 reports the historical background. Section 4 describes how the study is conducted by providing information about its subjects, the instruments used in collecting the data, and the data collection procedure. Section 5 presents an analysis of the collected data. Finally, Section 6 provides the conclusion for this study.

3.2 Literature Review

Currently, higher education is continuing to play a key role in economic development, because our world economy has become knowledge and network based and high-quality research and technology are becoming increasingly important for maintaining innovations in a new economy (Pillay 2011; Pinheiro and Pillay 2016; Powell and Snellman 2004; Varghese 2009; World Bank 2002). The World Bank's 2002 study finds that the international community is now re-examining the importance of higher education for increasing a country's intellectual capacity development, because participation in an increasingly knowledge-based world economy has become essential for progress (Arvanitidis and Petrakos 2011; Asian Development Bank 2007; Kruss et al. 2015; University of Oxford 2015; Watkins 2015). For example, Pillay (2011) highlighted how Finland's economy has diversified dramatically over the past two decades. In the face of an economic crisis, the government made two important policy decisions. The first one was to develop the Nordic welfare model further,² and the second was to invest substantially in the development of the knowledge economy. In line with these economic policy decisions, the role of higher education assumed much greater importance in the 1990s. The author reports that Finland's government has now started to invest in education generally and in HE in particular. In addition, the state is investing substantially in research and development (R&D) spending. Finland's national objective is to achieve "sustainable and balanced social and economic development". High levels of employment, productivity, and competitiveness are key factors. A high-quality higher education system, as well as measures to increase research and technological development, plays a significant part in the attempts to attain the country's national development goals. Beyond primary and secondary schooling, higher education is necessary for building technical and professional capacity as well as for producing qualified teachers at every level (Jongsma 2016; OECD 2000).

Developing countries risk being marginalised further in the competitive world economy if their tertiary education systems are not adequately prepared to capitalise on the creation and utilisation of knowledge and respond to changing labour market requirements for advanced human capital (Gastrow and Lorentzen 2012; OECD 2000; World Bank 2002). Therefore, developing countries should effectively prepare a very good higher education policy for increasing capacity-building programmes for teaching skills and techniques, research and technological development, innovations, and advanced human capital through a high-quality higher education system.

3.2.1. Capacity-Building Programmes for Teaching Skills and Techniques

It is necessary to undertake more capacity-building activities for higher education in developing countries (Deuren 2013; Lancrin 2004; Stig 2006; World Bank 2000). Teacher training is an important matter of national capacity development in any country, because high-

² The Nordic model refers to the economic and social policies common to the Nordic countries (Denmark, Finland, Norway, Iceland, the Faroe Islands, and Sweden). These include a combination of free market capitalism with a comprehensive welfare state and collective bargaining at the national level with a high percentage of workers belonging to a labour union and state provision of free education and free health care as well as generous, guaranteed pension payments for retirees funded by taxation.

quality teacher education for educating future citizens contributes to the reduction of poverty in the long run (Barnes et al. 1994; CHET 2006; OECD 2000). However, capacity building for higher education in developing countries is a complicated and ongoing process that needs to focus strongly on historical, cultural, and academic contexts (Jackson 2016; Quinlan 2011; Stig 2006).

3.2.2. Capacity-Building Programmes for Research and Technological Development

As universities in every country take on entrepreneurial roles, industries are able to organise academic education and research and public–private relationships between industries. As a result, governments can be redefined in the light of new technological options in universities (Dezure 2002; Lall 1992; Leydesdorff 2018). Developing countries must provide an opportunity for quality academic research in higher education, because academic research is a major source of knowledge and innovation at national, regional, and international levels (Group of Eight 2013; Meek and Davies 2009). Most of the industrialised countries are trying to invest in high-level research on higher education, and their governments are continuing to build world-class systems of universities as research-oriented institutions (Altbach and Salmi 2012; Fernate et al. 2009; Salmi 2009). With the rise of the knowledge-based, creative economy, universities are increasingly seen as a source of the knowledge, innovation, and technological progress that companies desire (Department for Business Innovation and Skills 2009; Higher Education Authority 2002; Kim et al. 2017; OECD 2000). It can be said that many of the economic benefits of academic research come from inventions in the private sector that build on the scientific and engineering base created by university researchers (Henderson et al. 1998; Poyago-Theotoky et al. 2002). However, most of the universities in developing countries are trying to produce knowledge employees rather than innovators (Bell and Pavitt 1997; Gereffi 1995). A few developing countries are interested in having a systematic national structure for R&D, and their universities are providing advanced innovation courses because of the following factors (Arocena and Sutz 2002):

- (1) Developing countries have borrowed technology, so their R&D is less significant for the production process.
- (2) The market demand for expensive, high-tech products is weak, so local industries and universities have little incentive to invest in R&D activities.
- (3) Most technology transfer arrangements are sophisticated.
- (4) Local firms have low human resource power for absorbing innovation.
- (5) Limited financial resources cause the majority of universities to lack technological innovation.

Thus, it is obvious that technology absorption is not simply a process of copying but rather involves a considerable amount of additional work to adapt it to a different practical environment and assimilate it into commercial production in the conditions of an emerging market (Malecki 1991). That there is a problem with higher education in most developing countries is evidenced by the fact that they are impressed by the higher education systems of developed countries. They try to copy exactly rich countries' higher education policies and ideas to upgrade their own higher education system. Zgaga (2014) notes that there is a hypothesis that peripheral countries basically follow the systems of central countries in their attempts to modernise their higher education system. Zgaga mentions that these developing countries can be very fast, and even careless, in assuming the role of an experimental laboratory

for the great ideas that come from other countries. However, according to Zgaga, this is only half the story; the other half is internal. The question is whether the policy development processes of developing countries are determined by the same principles and conditions as those in developed countries – or whether perhaps in some ways they fundamentally diverge from them. Zgaga states that copying generalised policy recommendations, regardless of the particular national context, cannot lead to success. Applying the general principles of higher education policies in the specific circumstances of a given country necessitates a deeper insight into those policies’ historical, cultural, and academic contexts. Achieving this can directly assist the knowledge transfer between universities and enterprises.

E-learning does not require regular class attendance, and it can reduce the time constraints of working people and industry (Becker and Eube 2018). It is useful to have some e-learning instruments to overcome the gap between the two stakeholders, business and university, and on a micro-level more countries are seeing the significance of higher education and its role in providing economic growth and reducing poverty in developing countries (Bloom et al. 2006; Varghese 2008).

3.2.3. Capacity-Building Programmes for Innovation

Universities can differentiate their roles by placing more emphasis on cognitive effects as a model of problem-solving ability that emerges as innovative behaviour through the opportunity of university entrepreneurship education (Brennan et al. 2014; Kim et al. 2018). Today’s economy can be called a “creative” economy, and universities have the important role of providing a support system and a suitable environment for fostering creativity. These help students to obtain results and profit through experimentation as well as enabling them to gain experience in each step of the process of performing innovation, as they develop their ideas through the utilisation of self-directed information and knowledge (Kim et al. 2017).

Therefore, developing countries must organise their higher education policies well to increase the capacity-building programmes, research and technological development, and innovation and advance human capital through a high-quality higher education system.

3.3 Methodology

3.3.1. Research Design

A qualitative research design is used in this study. In-depth individual interviews were conducted with the Department of Higher Education of Myanmar, Mandalay University, and Mandalay Technological University to analyse in depth the main weak points of the Myanmar higher education system during the policy reform period. This section also provides details of the methods and procedures that were employed in carrying out this study.

3.3.2. Research Question

After briefly reviewing the Japanese higher education reform, two research questions were set as follows:

- (1) What are the solutions to the major problems of Myanmar’s higher education system?
- (2) How can Myanmar’s higher education policy makers reform Myanmar’s higher education system more effectively?

3.3.3. Sampling Method

The sample was selected to obtain academic experts' opinions (e.g., important high-ranking government officers or policy makers of the Department of Higher Education, rectors and professors, and heads of universities) in Mandalay and Nay Pyi Taw. The data collected from Mandalay University, Mandalay Technological University, and the Department of Higher Education were sufficient to obtain meaningful results efficiently.

3.3.4. Data Collection

The data collection procedure used a semi-structured questionnaire that served as an interview guide. Certain questions were prepared, and some additional questions arose during the interviews.

To examine the problems faced by Myanmar's higher education system, the following questions were included in the semi-structured questionnaire:

- (1) What do you think about the purposes and objectives of your university?
- (2) What do you think about some requirements of the faculty in your university?
- (3) What do you think about autonomous quality assurance activities in your university?
- (4) What do you think about your strategies for the internationalisation of universities?
 - Introducing classes in English
 - Inviting international students to study in Myanmar
 - Developing universities as centres of internationalisation
- (5) What activities does your university apply for solving the problems of human resource development?
- (6) What have you done as an educator to promote higher education? Were your activities effective?
- (7) What are the improvements that your university should make in order to increase its efficiency and promote higher education more effectively?
- (8) What do you think about the role of private universities in terms of quality for developing Myanmar's higher education?

3.3.5. Classification for Data Analysis

Based on a review of the interview results, the main problems facing Myanmar's higher education system were extracted. The groups in this analysis are drawn from three complementary and linked strategies and programmes of Myanmar's Ministry of Education, categorised into three groups. They are:

Category (A): Current Situation (Resources)

Category (B): Current Situation (Engagements)

Category (C): Current Situation (Environments)

3.4 Data Analysis

3.4.1. Category A: Current Situation (Resources: Financial, Autonomy, Quality Assurance)

What are the main problems and challenges of higher education faced recently in Myanmar in terms of resources?

Interviewee (S1)³: All Memorandums of Understanding (MOU) are proposed by other foreign universities and we have never been able to ask for one ourselves. Moreover, we don't have enough budgets or funds to send lecturers to study abroad.

Interviewee (S3)⁴: The International Relationship department was founded six months ago and it is still very weak, with no experience, no funds, and no clear policy (interview on 11 November 2017).

Interviewee (S4)⁵: We are weak in international competency and we need a lot of training and experience to catch up.

Interviewee (S7)⁶: Accreditation shows that most of the lecturers are still weak in English, so international relationships are sometimes not very effective.

The problem here is that there is not enough money to send lecturers to study in foreign countries, no adequate experience of international relationships and competency, no strong English language proficiency, and insufficient funds to strengthen the higher education governance and management capacity.

Interviewee (S2)⁷: Our higher education organisations are not autonomous and lack budgets.

Interviewee (S3): Quality assurance is a challenge without full autonomy, because even small things that are necessary for QA cost money. With autonomy, we can make budgets ourselves for hiring good office staff and qualified lecturers.

Interviewee (S1): Autonomy is still limited. But the decision on which subjects to teach each year is not controlled by the government.

Interviewee (S2): Openly expressed that autonomy and budgeting for higher education in Myanmar has a long way to go.

Interviewee (S3): Without autonomy, it would be very hard to perform QA in Myanmar's higher education development.

Interviewee (S4): There is no autonomy at all in the university, except for the curriculum.

Interviewee (S6)⁸: There is no autonomy for budgeting for the university and the library has grown little since 2015, with around 1,800 USD provided by the government for buying books.

³ S1: Professor and Head of IR Department at Mandalay Technological University (interview on 11 November 2017).

⁴ S3: Professor and Head of Administration Department at Mandalay Technological University (interview on 11 November 2017).

⁵ S4: Professor and Head of Economics Department at Mandalay University (interview on 9 December 2017).

⁶ S7 = A very important high-ranking governmental policy maker in the Department of Higher Education in Nay Phyi Taw (interview on 3 April 2018).

⁷ S2 = Rector of Mandalay Technological University (interview on 5 October 2017).

⁸ S6: Head of the Library at Mandalay Technological University (interview on 9 November 2017).

This is because Myanmar's new government has increased education spending from the national budget from 1% of the GDP to 11% of the GDP in 2013.

Table 3.1 shows the annual library budget allocation of Mandalay Technological University.

Table 3.1 Annual library budget allocation of Mandalay Technological University (MTU)

Year	Budget Allocation (USD)
2005–2006	844
2006–2007	968
2007–2008	1,153
2008–2009	1,615
2009–2010	2,454
2010–2011	1,474
2011–2012	18,411
2012–2013	1,989
2013–2014	2,000
2014–2015	1,800
2015–2016	1,800
2016–2017	1,800

Source: Responses of the Librarian of MTU (9 November 2017).

According to the above data, another main problem of Myanmar's higher education is that there is very little autonomy for universities, because they are all state owned. The previous data show the recent conditions of a lack of autonomy, budgets, and funds in all universities in Myanmar.

Interviewee (S1): Our University has ISO 9001:2008, but it needs to be updated. QA and accreditation system were just proposed at my university.

Interviewee (S2): Our Ministry of Education is starting to ask us to set up an internal QA system (IQA) and QA, but external QA (EQA) might take around 1–5 years.

Interviewee (S3): A university that has ISO and QA is different from a university that has no ISO and QA. The problem is finding the budget to have them, because there is less support from the government.

Interviewee (S4): Our University has an IQA team for the whole university and also a QA team for each department, and we are also a member of the ASEAN QA network. But we don't have a system, so we are trying to encourage university members to be systemic. No EQA team has come to check yet. But our IQA team is ready to show them our reports.

Interviewee (S5)⁹: We have recently started to engage with EQA teams in 7 departments out of 21 departments.

Source: The author's interview survey.

⁹ S5: Professor and Head Quality Management Representative at MTU (interview on 08 November 2017).

Interviewee (S7): QA without full autonomy is very challenging, because we need to spend money, even on small things, to fulfil the needs of quality assurance. With autonomy, we can make our own budgets for hiring good office staff and qualified lecturers.

These interview answers show that, despite the indisputable fact that Myanmar's higher education authority is trying to establish a Higher Education Quality Assurance Agency to lead the development of national quality standards for higher education, there has always been an argument over whether the government will contribute a large enough budget and provide full autonomy to universities to make their own decisions.

3.4.2. Category B: Current Situation (Engagements: Qualifications of Teachers, Researchers, and Their Facilities)

What are the main problems and challenges that higher education has faced recently in Myanmar in terms of engagements?

Interviewee (S1): Centralisation is still going on, because, when we ask them to buy good brands of lab tools for our faculty, they never give us the right ones; we always get low-quality tools from different brands. Therefore, we cannot conduct quality research. Most of our curriculums are helped by the Japan International Cooperation Agency (JICA) to update students' equipment. There is no research support for lecturers.

Interviewee (S4): We do research without enough budgets.

Interviewee (S7): The Department of Human Resources (HR) in universities is very weak and we cannot hire many new teachers, and universities are also weak in research and campus facilities.

Source: The author's interview survey.

The previous answers illustrate that, in spite of the higher education authority wanting to establish a National Research and Innovation Fund and Research and Development Centres at higher education institutes (HEIs) to benefit university teaching and learning and develop university-managed income streams, the current situation shows the struggle with government centralisation. The result is poor-quality research, no support research by university lecturers, no budget for research, and no adequate research facilities at the universities.

Interviewee (S3): The whole system of higher education is very confusing; all the requirements need to have a clear policy, autonomy, and budgets.

Interviewee (S2): Our higher education organisations have no autonomy and no budgets. Our Ministry of Education is starting to ask us to set up an IQA System and QA, but EQA might take around 1–5 years.

Interviewee (S4): We need competency training for all our lecturers, and we also need exposure to the world, because a lecturer who has been to foreign countries thinks differently.

Source: The author's interview survey.

These answers demonstrate that, to be world-class national universities and comprehensive universities, the main problem is that there are still ambiguous policies throughout the entire higher education system. Moreover, they still do not provide any universities with full autonomy or large enough budgets to become world-class national universities. Additionally,

competency training is desperately required for almost all universities lecturers to enable them to become internationally qualified teachers.

Interviewee (S1): There are no funds from the government and they cannot support the purchase of lab equipment. Therefore, our lab facilities are very poor now. Moreover, we are very weak in research and campus facilities.

Interviewee (S4): Most students don't use critical thinking in class, and they never read ahead; perhaps our culture does not foster challenging classes. Therefore, we should start to change our teaching and learning cultures first. To change these cultures, we need actual support, especially for facilities (materials and tools) and so on. We are facing time problems, financial problems, and problems with students' participation. Those are my challenges.

Source: The author's interview survey.

Although the government wants to upgrade facilities at selected HEIs, it still cannot provide enough funds to buy the latest lab equipment, useful high-tech materials and tools, standardised research centres, or advanced campuses.

Interviewee (S6): The library is very important for higher education development. But, in our university's library, we are still using a manual system to find books and are not yet able to develop an online library. Our library is weak because we do not have much support or a budget from the government. We can get a small fund each year. We have no authority to buy books ourselves; we need to submit our entire book requirement list to the Ministry of Education. International e-librarian training is very necessary.

Source: The author's interview survey.

While the government would like to enhance the status of e-learning centres and e-libraries in HEIs, the major problem is the shortage of qualified e-librarians and standardised e-libraries.

Interviewee (S1): Centralisation is still happening, because, when we ask them to buy good brands of lab tools for our faculty, they never give us the right ones, and we always get low-quality tools from different brands.

Interviewee (S2): The quality of all the faculties at my university is poor in terms of infrastructure and facilities because of the large budget that is needed.

Interviewee (S3): There are promotion transfers of lecturers to other universities in different cities around the country and a shortage of classroom materials needed for teaching.

Source: The author's interview survey.

The following Figures 3.1 and 3.2 provide information about the annual changes in the number of lecturers and students at MTU. It is clear from the charts that the annual number of students is growing each year, from 61 students in 2011 to 1541 students in 2017 (over a 25% increase). However, the percentage of lecturers has decreased by about 30%. The number of students is increasing year by year due to a change in the government policy allowing bachelor's degrees to be reopened at MTU in 2012. At the same time, the unstable transfer order policy of moving lecturers¹⁰ is reducing the number of educators over time.

¹⁰ Under the Ministry of Education's policy, all universities' lecturers and staff (sometimes including rectors) have to move from one university to another within the same or different regions or states every three to five years.

The previous answers show that, although Myanmar's higher education authorities are trying to undertake professional development for faculty and laboratory technicians as part of their national higher education reform, all universities' faculties in Myanmar are still facing the problem of using the traditional centralised model; a lack of autonomy, budgets, and funds for faculty development; and an inequitable ratio of teachers to students. The teacher shortage is the result of the instability caused by the transfer order policy, which is reducing the number of educators over time. The transfer order policy has created hardship for teachers, many of whom have been posted to universities far from their families. Some lecturers are prohibited from teaching the same subjects in their new universities,¹¹ and some places are still experiencing fights between the Myanmar government and the ethnic groups in Myanmar.

Figure 3.1 The annual number of lecturers at Mandalay Technological University (2010–2017)

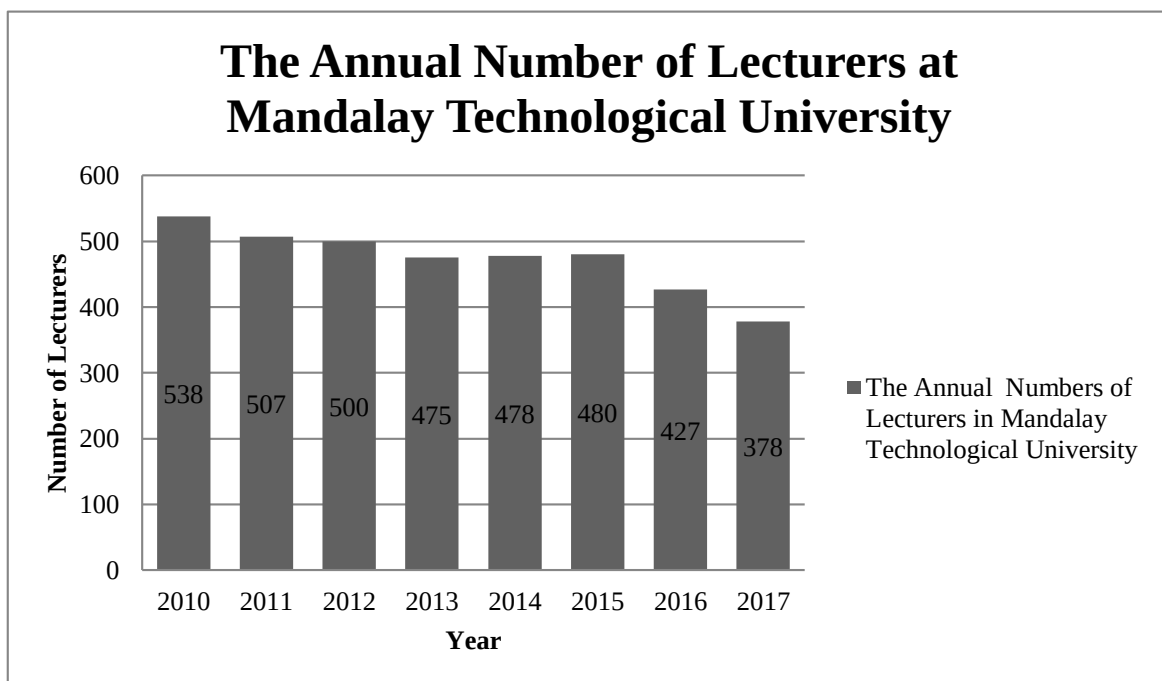
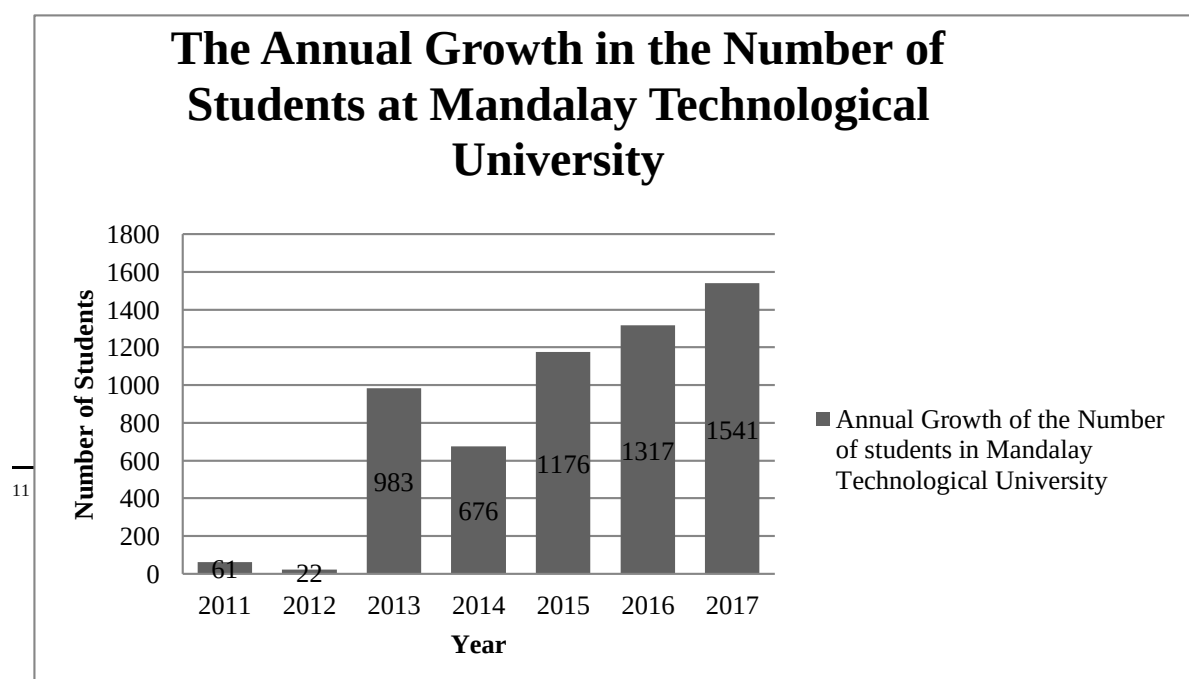


Figure 3.2 The annual growth in the number of students at Mandalay Technological University (2010–2017)



Source: The author's interview survey of the Department of Student Affairs (16 November 2017).

3.4.3. Category C: Current Situation (Environments and Facilities for Students)

What are the main recent problems and challenges that higher education faces in Myanmar in term of environments?

Interviewee (S1): There are no exchange programmes for students to study in other countries and there are no rooms here for international students who can study at our universities. That's why our education markets are losing to Thailand and other neighbouring countries. All the MOUs are proposed by other foreign universities, while we have never been able to ask for one ourselves because we don't have the funds. Moreover, we don't have the budget or enough funds to send lecturers to study abroad.

Interviewee (S3): HR is more important than everything else, and the capacity to build a teaching staff requires the payment of good salaries and the support of funds and budgets.

Interviewee (S4): Most students don't use critical thinking in class, and they never read ahead; perhaps our culture does not foster challenging classes. Therefore, we should start to change our teaching and learning cultures first. To change these cultures, we actually need support, especially for facilities (materials and tools) and so on. We are facing time problems, financial problems, and problems with students' participation. Those are my challenges.

Interviewee (S7): Having private universities in Myanmar is very important for higher education development. But we still need strong national universities, because students with financial problems are able to afford to study at national universities. Although private universities cost a lot, they have a good quality return. It is really useful to have private universities.

As observed in these answers, the major problems are a lack of official private higher education institutes; the availability of very good salaries for a teacher capacity-building programme, the need for supporting funds and budgets for students' exchange programmes to study at foreign countries, and a lack of rooms for international students to study at Myanmar universities.

In conclusion, based on the data analysis, the solutions to the main problems of higher education reform in Myanmar are the following.

Firstly, it is highly necessary for all universities in Myanmar to have large enough budgets to send lecturers to study in foreign countries; adequate experience in international relationships and competency; strong English language proficiency; and sufficient funds to strengthen the higher education governance and management capacity. Moreover, universities must have funding for travel to other countries to propose and sign MOUs. Because the universities are all state owned, they have never been given full autonomy, budgets, and the necessary funding to make their own decisions.

Secondly, decentralisation is required, along with strong budgets and funding for qualified research and world-class national universities, the purchase of the latest lab equipment, useful high-tech materials and tools, the standardisation of research centres, and the building of advanced campuses. The higher education government authority must reduce ambiguous policies throughout the entire higher education system. Additionally, competency training is desperately required for almost all universities' lecturers to enable them to become internationally qualified teachers.

Thirdly, the government must immediately acquire many qualified e-librarians and create standardised e-libraries. Policy makers must retreat from the traditional centralised model and solve the problem of the poor teacher–student ratio resulting from the transfer policy.

Finally, the government must officially open private higher education institutes as soon as possible, provide very good salaries for a teacher capacity-building programme, and support the funding and budgeting for students' exchange programmes and the housing of international students wishing to study at Myanmar's universities.

3.5 Conclusion

The purpose of this study is to reveal solutions to the main issues surrounding the development of Myanmar's higher education system in recent times. Moreover, this study is aimed at examining the best ideas for reforming Myanmar's higher education system effectively and systematically, using Japan's higher education reform as a comparison. This study shows that Myanmar's higher education system can apply its strong points to establish the right direction for the generation of a huge vision and breakthroughs in Myanmar's industrial development, thereby rapidly changing a poor nation into a rich one. These findings will be useful for those in charge of higher education policies as well as prospective students and professors who are considering conducting further research on the development of higher education in Myanmar.

These results highlight that it is highly necessary for all the universities in Myanmar to have large enough budgets to send lecturers to study in foreign countries; there must be adequate experience in international relationships and competency; there must be strong English language proficiency; and there must be sufficient funds to strengthen the higher education governance and management capacity. Moreover, universities must have funds for travel to other countries. Additionally, universities, even those that are state owned, must be given full autonomy, budgets, and the necessary funding to make their own decisions.

Secondly, it is a significant requirement that all of Myanmar's universities apply decentralisation and maintain strong budgets and funds to conduct qualified research and support world-class national universities; buy the latest lab equipment, useful high-tech materials, and tools; standardise their research centres; and build advanced campuses. The higher education government authority must reduce the ambiguous policies throughout the entire higher education system. Competency training is desperately required for almost all of the universities' lecturers to enable them to become internationally qualified teachers. Thirdly, the government must immediately acquire many qualified e-librarians and create standardised e-libraries. Policy makers must retreat from the traditional centralised model and solve the problem of the poor teacher–student ratio resulting from the teacher transfer policy. The government must open more private higher education institutes as soon as possible, provide very good salaries for a teacher capacity-building programme, support funding and budgeting for students' exchange programmes, and creating housing for international students who wish to study at Myanmar universities.

Chapter 4: Challenges of Governmental Policy Changes in the Development of Higher Education in Myanmar from the Case of Japanese Higher Education Reform

4.1 Introduction

In March 2017, Myanmar's new Investment Law was enacted as the next step forward in opening to the world. The objective of this law is to develop responsible investment businesses. However, the major challenge in developing a country is to have a strong financial services sector, infrastructure sector, and education sector. Building a competitive higher education system plays a very important role, because the country needs a more educated and skilled young population to support Myanmar's economy in its dramatic progression dramatically. The problem is that, after over 50 years of isolation, Myanmar's higher education system was a complete failure under military rule, so it is very hard to find skilled workers in Myanmar nowadays. Without a remarkable change in the higher education policy over the next few years, Myanmar's human capital in all sectors will suffer a severe decline due to the very outdated management education system.

4.2 Myanmar's Education Policy

4.2.1. Overview of the Old Higher Education Policy and the Development Plans for Reform

According to the Myanmar University Education Law of 1973, academic and administrative policy matters relating to higher education are organised by the two councils chaired by the Minister of Education. These are the Universities Central Council and the Council of University Academic Bodies. All institutions of higher education are state run, and these institutions are totally dependent on funds provided by the government. The allocation of the budget of these institutions is undertaken by the Department of Higher Education. The amount allocated to each institution is based on its size and the nature of the courses offered.¹²

Myanmar's higher education policy maker has held annual seminars in the higher education sub-sector to initiate reforms since 1997. The seminars held between 1997 and 2000 produced the first wave of changes, while the later ones focused on the implementation of education promotion plans. The plans were decided to make substantial progress in achieving better-qualified human resources to meet the new challenges of modernising the country's economy. These tertiary education promotion issues covered the relevance and responsiveness of the existing courses, the redesigning of the course structure, the reform of the assessment system, the introduction of faculty development programmes, the harnessing of ICT in higher education, the enhancement of cooperation with foreign institutions, the creation of an alternative delivery modality for higher education, and the introduction of new programmes to promote human resource development. In the 2000, 2001, and 2002 seminars, the policy makers widely discussed the formulation, implementation, and review of the higher education development plans and created a vision for education. The aim is to create an education system that will generate a learning society capable of facing the challenges of the knowledge age in accordance with the national motto and building a modern developed nation through education, which will act as a major resource in transforming Myanmar into a peaceful, modern, and developed nation due to the globalisation of the economy and the higher rate of returns to investment in higher education.¹³

4.2.2 Overview of Recent Higher Education and the New Policy and Strategic Reforms

This section provides a short introduction to the recent higher education sector in Myanmar and the law and policies that have tried to steer the quality improvement of higher education for all Myanmar's students and citizens.

According to the Myanmar Ministry of Education (MOE) (2016), there are 171 HEIs (colleges, degree colleges, and universities), which are overseen by 8 ministries. In the 2015 academic year, there were 225,178 full-time students studying in HEIs under the responsibility of the MOE, while an additional 411,164 students were accessing higher education through distance education universities,¹⁴ as shown in Figure 2.3 of Chapter 2.

Myanmar's higher education system consists of a 4-1-2 structure: 4 years for the bachelor's degree, 1 year for the qualifying class, and 2 years for the master's degree, as shown in Figure 2.3 of Chapter 2. The structure of education in Myanmar is divided into the administration structure and the academic structure.

¹² International Conference on Education, 43rd session, Geneva, 1992 (UNESCO: IBE 1993).

¹³ Ministry of Education Department of Higher Education (Lower Myanmar).

¹⁴ National Education Strategic Plan 2016–21 Summary.

Three main government organisations supervise the higher education sub-sector:

1. The National Education Committee (NEC)
2. The Universities Central Council (UCC)
3. The Council of University Academic Bodies (CUAB)

Major education policies in Myanmar have been implemented based on the 30-Year Long-Term Education Development Plan. Medium-term plans for 5 years are formulated by achieving the Long-Term Plan.

The policies and administrative guidance on education are fully supervised by the National Education Committee, chaired by the Union Minister for Education. The committee was organised by the new government. The committee facilitates the development of an education system, which is compatible with the traditional, cultural, and social values of the nation and which will keep up with its economic and political aspirations.

According to the MOE (2016), the Constitution of the Republic of the Union of Myanmar provides the foundation legal framework for the higher education sector in Myanmar. Article 28 of the Constitution stipulates that the Union shall implement a modern education system that will promote all-round correct thinking and a good moral character, contributing to the building of the Nation. Article 366 of the Constitution states that every citizen has the right to conduct scientific research, explore science, work with creativity, and write to develop the arts and conduct research freely in other branches of culture.

The Parliament's National Education Law (NEL) (2014) and NEL Amendment (2015) have provided an excellent national framework for the implementation of a wide range of complementary reforms across the national higher education system, such as the establishment of a standards-based higher education quality assurance system and greater decentralisation within the education system (MOE 2016).

In 2017, the main reform of higher education by the government aimed to develop a world-class higher education system, in which universities have autonomy over their own curriculum and governance and the ability to conduct independent research, develop a technical and vocational education and training system that is equal in status to academic learning at universities, establish effective education services that do not place a burden on parents and communities, ensure the effective, efficient, and transparent allocation and use of government, private sector, other domestic, and international funding, and implement effective educational reforms, as well as management and monitoring programmes, based on accurate information and data (MOE 2016).

According to the National Education Strategic Plan (2016), the following three complementary and linked strategies and programmes will be implemented to achieve the transformational shift in higher education.

Table 1 The relationship between Strategy 1 and the programme of higher education

Strategy 1: Strengthen higher education governance and management capacity
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Programme: Institutional capacity development programme Programme Component 1: Undertake overseas study tours to document best practices and establish partnerships with international universities, research centres, and other higher education institutions Programme Component 2: Establish a National Institute for Higher Education Development (NIHED) to improve higher education governance and management, build individual skills, and strengthen institutional capabilities Programme Component 3: Strengthen the governance of HEIs through university charters and university councils Programme Component 4: Strengthen the autonomy and accountability of HEIs to realise more efficient and effective management, better value for money, and significant improvements in access to quality higher education Programme Component 5: Establish a Higher Education Quality Assurance Agency to lead the development of national quality standards for higher education and undertake quality assurance assessments of all HEIs
End Outcome (by 2021): Strengthened governance and management by officials from the MOE and line ministries and managers of HEIs improve the access to quality higher education

Source: The Government of the Republic of the Union of Myanmar Ministry of Education (National Education Strategic Plan 2016–21 Summary).

Table 2 The relationship between Strategy 2 and the programme of higher education

Strategy 2: Improve the quality and relevance of higher education
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Programme: Higher education quality and career relevance Programme Component 1: Establish a National Research and Innovation Fund and Research and Development Centres at HEIs to benefit university teaching and learning and develop university-managed income streams Programme Component 2: Develop a policy and strategy for world-class national universities and comprehensive universities Programme Component 3: Upgrade the facilities at selected HEIs Programme Component 4: Enhance the status of e-learning centres and e-libraries in HEIs Programme Component 5: Improve the effectiveness of the distance education system Programme Component 6: Undertake professional development for faculty and laboratory technicians
End Outcome (by 2021): Non-academic staff deliver effective administration and academic staff deliver effective teaching and undertake quality research

Source: The Government of the Republic of the Union of Myanmar Ministry of Education (National Education Strategic Plan 2016–21 Summary).

Table 3 The relationship between Strategy 3 and the programme of higher education

Strategy 3: Expand equitable access to higher education
Programme: Equitable access to higher education programme Programme Component 1: Create a good teaching and learning environment at HEIs Programme Component 2: Promote student support programmes
End Outcome (by 2021): Equitable access for students to HEIs regardless of their socio-economic background

Source: The Government of the Republic of the Union of Myanmar Ministry of Education (National Education Strategic Plan 2016–21 Summary).

According to the above tables, the new government is trying to support social and economic development by embarking on education reforms, such as allowing greater knowledge production and effectively developing highly skilled research centres.

As a matter of fact, the MOE recognises that many of the reforms listed above could take longer than five years to implement successfully. Accordingly, the MOE will use a phased approach to operate the National Education Strategic Plan (NESP).

Phase 1 (2016–21): this phase will focus on establishing and implementing priority reforms that will contribute directly to the achievement of the NESP goal and nine transformational shifts.

Phase 2 of the NESP (2022–27): it aims to complete successfully the priority reforms from Phase 1 and implement additional complementary reforms to achieve further the NESP goal and transformational shifts.

Nevertheless, the argument has been put forward by many international investors that it will still be very difficult to solve Myanmar's higher education problems in 5 years, because, after over 50 years of isolation, Myanmar's higher education system was a complete failure under military rule. Many people have pointed out the problem of not having enough skilled workers in Myanmar, particularly outside the big cities, Yangon and Mandalay, because Myanmar's higher education system contains few academic achievements, student participation, or high quality of graduates.¹⁵

4.2.3. Japanese National University Reform Plan

The Ministry of Education, Culture, Sports, Science, and Technology (MEXT) has undertaken many efforts to reform universities in a competitive environment, with the objective of invigorating higher education and encouraging excellent education and research activities.

MEXT created the National University Reform Plan to boost higher education in Japan. Figures 4.1 and 4.2 are summaries of the National University Reform Plan that will be implemented to achieve a more transformational shift for higher education in Japan.

¹⁵ *Myanmar Business Today* is Myanmar's largest circulating business publication. It is Myanmar's first and only bilingual (English–Myanmar) business newspaper and is distributed in Myanmar and Thailand.

National University Reform Plan (Summary)

The Third Mid-term Plan starting FY2016 aims to reform national universities to maintain competitiveness and create new added-value ideas by building a structure in which each university makes optimum use of its strengths and characteristics and encourages independent and autonomous improvement and development.

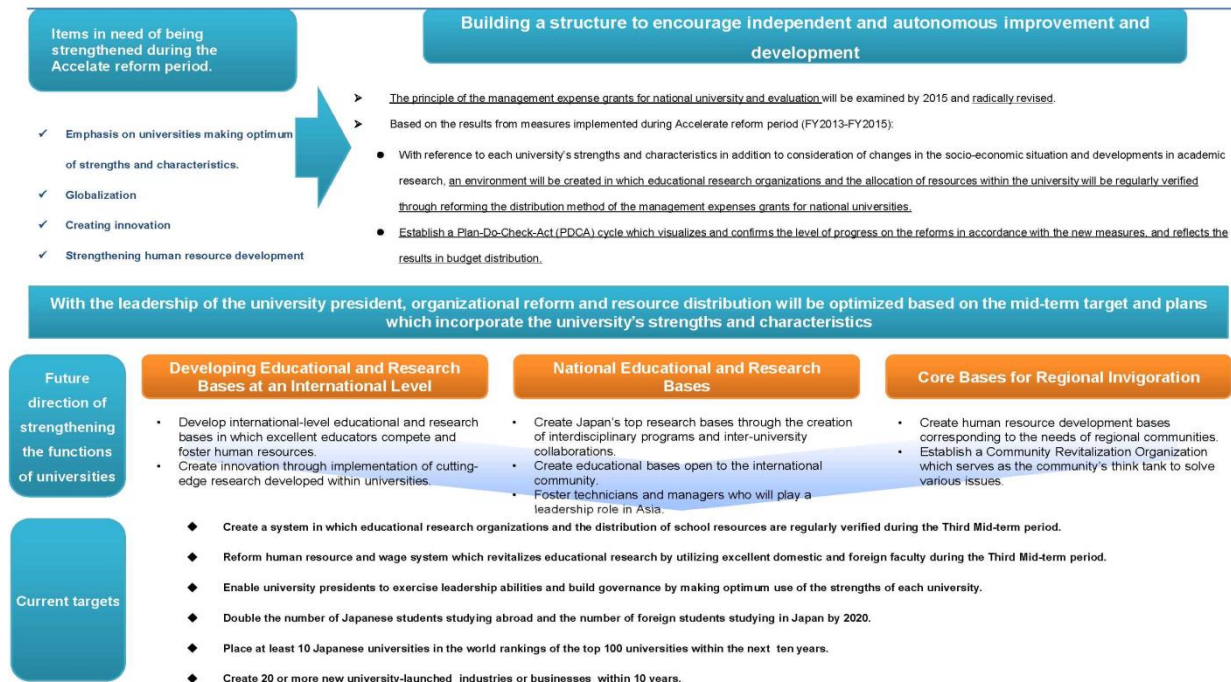


Figure 4.1 The National University Reform Plan (summary)

Source: Ministry of Education, Culture, Sports, Science and Technology.

Measures to Strengthen Functions of National Universities Intensive Period for the Implementation of University Reforms (FY2013-FY2015)

Redefining Mission

Upon exchange of views between MEXT and universities, **based on objective data of research levels, educational performance and industry-university collaboration, MEXT and universities will announce their strengths, characteristics and social roles by the end of FY2013.**

Building educational research organizations corresponding to social changes

- **Provide priority assistance through the management expenses grants for national universities to universities promoting measures** aimed at strengthening functions (redistribution of resources including reorganization and transformation of budget, personnel, facilities and space).
 - **Reflect reform measures** implemented by universities in the Second Mid-term Plan.
- The amount of indirect costs allocated to universities will be set at 30-40 percent.

Globalization

Develop international-level educational and research bases. Actively assist exchange students

Creating Innovation

Assist university-launched ventures. Strategically develop human resources in science and technology

Create a flexible salary system

- **Focus on supporting universities resolutely proceeding with internationalization** through inviting educational-units from foreign universities, establishing joint graduate schools, actively employing foreign faculty, increasing courses carried out in English.
- **Establish a new system of government-industry collaboration** which assists Japanese students studying overseas.
- Strategically assist foreign students by defining priority regions.
- **Build a system which promotes the local selection of students by utilizing overseas bases, approval of admission before students' arrival in Japan.**

- **Create a system which allows national universities to invest in companies supporting university-launched venture businesses.**
- Submit the Industrial Competitiveness Enhancement Bill to the extraordinary session of the Diet
- **Formulate a "Strategy for Developing Human Resources in Science and Technology"**
- Formulate by 2013.

- **Prompt reassessment of the distribution method for retirement benefits** upon securing the necessary amount through the management expenses grants for national universities, secure the associated costs for competitive funds.
- **Universities receiving priority assistance for advancing reform must secure an annual salary system and appropriate performance assessment system.**
- **Active assistance for the transfer of posts from senior faculty to young and foreign faculty.**
- Introduction of an annual salary system and combined wages using funds from external parties such as private companies for 10-thousand faculty members.
- Aim to adopt a policy which secures full-time faculty positions for about 1,500 young and foreign faculty members.

Strengthening governance

The Central Education Council **will summarize discussions within 2013, and implement the necessary assistance and reforms.**

Strengthening assessment system

Strengthen assessment system of the National University Corporation Assessment Council by increasing the number of committee members (excluding university related personnel) with people working in the industry, etc., and actively disseminate advanced measures.

Figure 4.2 The National University Reform Plan (summary) – Measures to strengthen the

functions of national universities

Source: Ministry of Education, Culture, Sports, Science and Technology.

4.3 Literature Review

“Higher education policy” refers to the modernisation agenda for universities, principally governance, autonomy, funding, research, and external quality assurance (Deboer et al. 2012; Pavel 2012).

Policy makers of higher education need to give full autonomy to universities to take responsibility and accountability for their curriculum or programme, staff, and resources. Moreover, they should have effective external representation in university decision making, overcome internal fragmentation, be encouraged to develop structured partnerships with the business community, such as economic development, improve the career prospects of researchers, increase the relevance of education programmes, create more possibilities for patenting and licensing, and develop additional sources of funding (Estermann 2011; King 2007; Zumeta 2000).

Many studies have been conducted around the world on higher education policies and reforms. Nitungkorn (2001) states that an increase in basic education levels will push higher education to be expanded more due to the advance in communication technology and increasing longevity (the members of the new generation of students who are seeking higher education vary in age, needs, and places of study). Moreover, Nitungkorn (2001) describes the need for higher education institutions to be flexible in their management of resources, personnel, and curriculum design. Accountability of state autonomous universities is required, and an external independent organisation is needed to perform an evaluation every five years. Internal evaluation is expected to be carried out annually by the institutions themselves. These external and internal evaluations are to improve the quality of higher education institutions. Singhadachakul¹⁶ (2015) states, in relation to higher education policies in Thailand, that all Thai universities are able to produce and develop a quality workforce, strengthen higher education’s capacity to generate knowledge and innovation, and foster sustainable development of communities. She also distinguishes the persistent problems of Thai higher education into five categories: 1) teachers: the quality of teachers and the teacher incentive system and poor education quality and learning outcomes; 2) learning: the quality of education and learners and the curriculum, teaching process, and measurement and assessment; 3) management: the educational administrative structure and lack of university autonomy; 4) distribution of opportunities: centralisation, a lack of focus on the development of the local curriculum, and institutions’ curriculum; and 5) manpower production and development: the inability of vocational and higher education to produce and develop capable and competitive manpower.

¹⁶ Ms Chadarat Singhadachakul is the director of the Bureau of International Cooperation Strategy Office of the Higher Education Commission, Thailand.

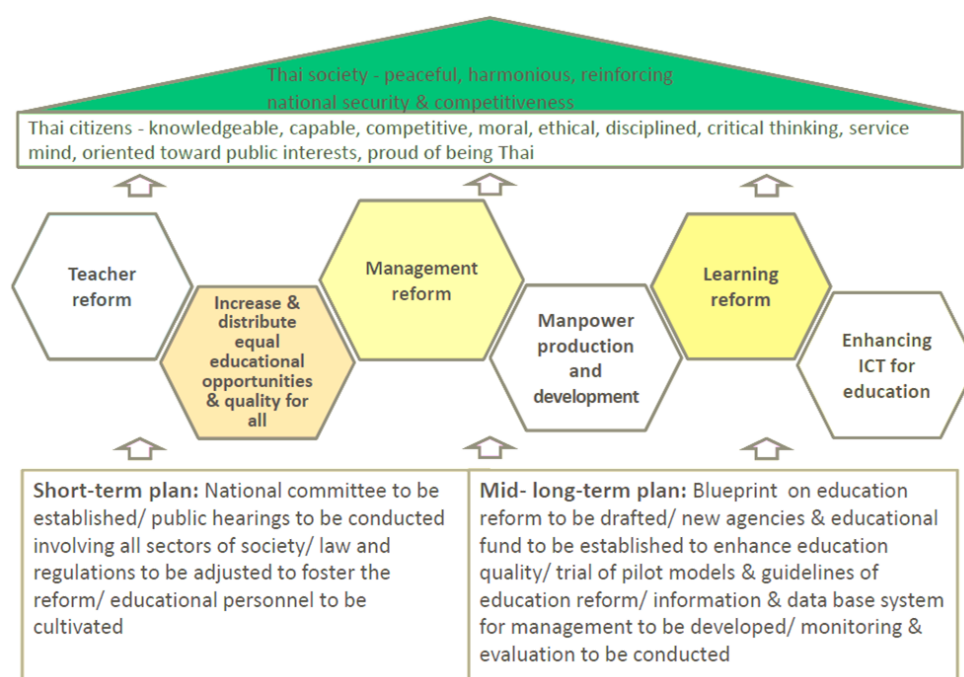


Figure 4.3 Education reform roadmap

Source: Ministry of Education Thailand.¹⁷

According to Natarajan et al. (2016), many countries are not able to cope with the influence of globalisation, economic impacts, and the rise of the global knowledge-based economy. Information and knowledge are the main necessities to handle those three influences. Therefore, Singapore's higher education reform stresses fundamental changes to the curriculum, and assessment methods are required to help equip higher education students with creative thinking skills and innovative ideas. From the perspective of the Singaporean government, investment in the higher education sector is necessary for the growing economy. The government has developed state or publicly funded universities into ones with academic standards, research quality, resource endowment, and managerial efficiency that can be comparable with world-renowned higher education institutions. The purpose is to create world-class universities in Singapore and to serve as a magnet for talent.

According to MEXT, after the Japanese government noticed the problems that existed both inside and outside the universities, the Central Council for Education, in response to a request from the Minister of Education, began a study of basic outlines for an overall reform of school education in July 1967. However, the outbreak of campus disturbances impressed the nation with the need for immediate reform of the university system; the shape that this reform should take came under intense discussion within each university and various bodies concerned with higher education, such as the National Universities Association, the Science Council of Japan (Nihon Gakujutsu Kaigi), and a number of organisations concerned with private universities. The Central Council for Education also intensified its investigations and, in June 1971, submitted its recommendations for reform to the Minister of Education. The report confirmed the observation that the existing university system could not meet the contemporary demands. Reforms were recommended across the educational spectrum: 1) diversification of higher education; 2) curriculum reform; 3) improvements in teaching methods; 4) opening of higher

¹⁷ Presented by MOE to the National Council for Peace and Order (NCPO) on Social Psychology in July 2014

education to the general public and establishment of a system of certification; 5) organisational separation of education and research; 6) establishment of “research institutes”; 7) rationalisation of the size of higher educational institutions and their administrative structure; 8) improvements in personnel policies and treatment of teachers; 9) change of the form of establishment of national and local public universities; 10) improvements in the governmental financing of higher education, the system of costs borne by the beneficiaries, and the scholarship system; 11) a national plan for the coordination of higher education; 12) improvements in the students’ environment; and 13) improvements in the selection procedures of students.

4.4 Methodology

The qualitative research method is applied in this study. In-depth individual interviews were conducted with very important high-ranking officers in the Department of Higher Education of Myanmar to explore their perspectives on their particular idea and the situation proceeding from the three complementary and linked strategies and programmes of the MOE (see chapter 2) that will be implemented to achieve the “transformational shift”¹⁸ for higher education.

This research asks the following question: how can the new governmental policy overcome Myanmar’s poor higher education system effectively, especially concerning the following three points.

Question 1 for Strategy 1: Strengthen higher education’s governance and management capacity

What are the main problems and challenges in strengthening higher education’s governance and management capacity by using five institutional capacity development programmes as a higher education policy maker?

What are the positive and negative factors concerning the implementation of this new policy?

Question 2 for Strategy 2: Improve the quality and relevance of higher education

What are the main problems and challenges in improving the quality and relevance of higher education by using six higher education quality and career relevance programmes as a higher education policy maker?

What are the positive and negative factors concerning the implementation of this new policy?

Question 3 for Strategy 3: Expand equitable access to higher education

What are the main problems and challenges of expanding equitable access to higher education by applying two equitable access to higher education programmes as a higher education policy maker?

What are the positive and negative factors concerning the implementation of this new policy?

The sample is selected from the government’s high-ranking policy makers of the Department of Higher Education and rectors in Mandalay, Yangon, and Nay Pyi Taw. The data were

¹⁸ A transformational shift is a shift in the business culture of an organisation resulting from a change in the underlying strategy and processes that the organisation has used in the past. A transformational change is designed to be organisation wide and is enacted over a period of time.
<http://www.businessdictionary.com/definition/transformational-change.html>

collected from the Ministry of Education (Nay Pyi Taw), Mandalay University, and Mandalay. A total of five key persons were interviewed for this paper. All the interviews were recorded to capture the data accurately. Then the interviews were transcribed and analysed accordingly. The data collection procedure involved the use of a semi-structured questionnaire, which acted as an interview guide. Certain questions were prepared in reference to the three complementary and linked strategies and programmes of the MOE, but some additional questions arose during the interviews. Some sample questions that were included in the semi-structured questionnaire are described in the following section.

4.5 Data Analysis

In this section, interview data consisting of positive and negative factors are analysed in relation to three complementary and linked strategies and programmes of the MOE. The outcome is to be utilised to understand the major key success factors in improving Myanmar's poor education system effectively. There are three major challenges facing higher education: Category A: Current Situation (Governance and Management Capacity); Category B: Current Situation (Quality); and Category C: Current Situation (Equitable Access).

In addition, the data comparing Myanmar's and Japan's higher education reform plans are analysed through interviews with higher education administrators. The categories in this analysis are drawn from the comparison of Myanmar's and Japan's higher education reform plans and divided into three categories: Category A: Current Situation (Governance and Management Capacity); Category B: Current Situation (Quality); and Category C: Current Situation (Equitable Access).

4.5.1. Analysis of Myanmar's New Higher Education Policy: Three Complementary and Linked Strategies and Programmes of the Ministry of Education

Category A: Current Situation (Governance and Management Capacity)

Strategy 1: Strengthen higher education's governance and management capacity

What are the main problems and challenges in strengthening higher education's governance and management capacity by using five institutional capacity development programmes as a higher education policy maker?

What are the positive and negative factors concerning the implementation of this new policy?

Table 4.1 The positive and negative factors concerning the implementation of the policy for the governance and management capacity of higher education

<i>Positive Factors</i>	<i>Negative Factors</i>
• Roots in Buddhist heritage • Living cost is low • Many young people are hungry to study, resulting in huge market needs • Support from many international countries • Steady economic growth through foreign investment	• Too weak to learn and adapt foreign advanced technologies • No government funding policy for higher education to learn the relevant tertiary education • Traditional teaching styles • Limited data for new research • Low salary • Shortage of qualified teachers

The first and biggest challenge for Myanmar's governmental higher education policy changes is to have very strong and tangible strategic plans for staff and teachers, including professors' capacity building, because most teachers ignore imaginative and creative thinking teaching approaches. Moreover, lecturers' salary is too low to conduct personal research, and there is no funding for any research from the government at all. Therefore, the real challenge for policy makers in Myanmar is to allocate a larger budget to students' and teachers' instruction, research, and services; the more efficient they are, the greater its ability to create a higher quality education system.

Therefore, it is very important for Myanmar's policy makers to put significant resources into higher education by using all their strengths (roots in Buddhist heritage, low living cost, many young people being hungry to study and creating huge market needs, and support from international communities) to overcome their weaknesses of lower-quality education. Moreover, it is necessary to add more funds to enable the expansion of the system with policies that enable access to tertiary education.

Category B: Current Situation (Quality)

Strategy 2: Improve the quality and relevance of higher education

What are the main problems and challenges of improving the quality and relevance of higher education by using six higher education quality and career-relevant programmes as a higher education policy maker?

What are the positive and negative factors concerning the implementation of this new policy?

Table 4.2 The positive and negative factors concerning the implementation of the policy regarding the quality and relevance of higher education

<i>Positive Factors</i>	<i>Negative Factors</i>
• Many are researching education-related themes, enabling theoretical support for enhanced education quality from foreign countries	• Still centralised by the government • Little authority given to university members • Financial support (funding) from the government is very small and limited • No strong connections and networks between education and industry • Less qualified lecturers • Imaginative and creative thinking teaching methods are ignored • Fewer student job opportunities • No funding for researchers • Ministry of Education is more concerned with control over programme/content than with quality and funding issues • No better academic data are used to support decision making at the university and policy levels • Too weak to link with external accreditation bodies • Lack of high-speed internet connectivity and e-libraries • Little room for private sectors • Poor curriculum, learning environment, research, and teaching processes • Poor infrastructure and facilities • Not many options for subjects are available in universities • Land prices are still very expensive for private universities • Political situation is still unstable

The second practical challenge for reforming Myanmar's higher education sector is that the government is still using the traditional centralised model and there are not many choices of up-to-date subjects and not enough qualified teachers in universities. Moreover, Myanmar's higher education system needs huge improvement in terms of quality-related dimensions, such as the curriculum, learning environment, and research and teaching processes. Myanmar does not have any official private universities yet, universities are still centralised by the government, university members have little authority, and the government funding is very low. Moreover, it is clear that the financial support (funding) from the Myanmar government is very weak and limited for all universities and that the Myanmar Ministry of Education is more concerned with control over the programme/content than with quality and funding issues. Additionally, policy

makers in Myanmar are facing some difficulties in providing the conditions that help students to develop creative skills, to think critically, to challenge, and to innovate.

In recent years, more and more people in Myanmar have been looking for good-quality higher education due to changing work opportunities and social lifestyles. Many people have started to spend a lot more time on good education. Therefore, Myanmar has considerable opportunities to raise the standard of higher education, because there are still many higher education-related themes and much theoretical support to be discovered for improving the quality of higher education if the government hands over more freedom, authority, and funds to private universities.

Category C: Current Situation (Equitable Access)

Strategy 3: Expand equitable access to higher education

What are the main problems and challenges of expanding equitable access to higher education by applying two equitable access to higher education programmes as a higher education policy maker?

What are the positive and negative factors concerning the implementation of this new policy?

Table 4.3 The positive and negative factors of expanding equitable access to higher education

<i>Positive Factors</i>	<i>Negative Factors</i>
• Support from many international countries	• No networking between universities and industries • Not able to teach students to the highest global standards • Very weak in international relationships (IRs) and networking with international affairs (IAs)

The third and most powerful challenge for Myanmar's governmental higher education policy changes is to give full authority to university leaders, deans, and faculty members to set up courses to meet the modern market needs. Moreover, if the new Myanmar bureaucratic higher education regulations are able to take impose bureaucratic restrictions on the curricular regulation and international relationships, they will provide breakthroughs in Myanmar's industrial development. Myanmar's higher education system has lost trust in its ability to meet the highest global standards and its position as the best place for developing students' abilities.

According to the personal interviews, Myanmar's academic reputation for excellence in teaching is still very weak, not only in international education markets but also in local ones. Moreover, as there are no official private universities in Myanmar, for employers, it is debatable whether the domestic public universities produce graduates whom their business wants to employ. Myanmar's higher education system is currently too weak to attract international students and staff to study and work in Myanmar.

4.5.2. Comparative Analysis of Higher Education Reform Plans in Myanmar and Japan

Category A: Current Situation (Governance and Management Capacity)

Table 4.4 Comparison between higher education reforms in Myanmar and Japan based on governance and management capacity

Myanmar Higher Education Reform Plan	Japanese Higher Education Reform Plan
• Undertake overseas study tours to document best practices and establish partnerships with international universities, research centres, and other higher education institutions • Establish a National Institute for Higher Education Development (NIHED) to improve higher education governance and management, build individual skills, and strengthen institutional capabilities • Strengthen the governance of HEIs through university charters and university councils • Strengthen the autonomy and accountability of HEIs to realise more efficient and effective management, better value for money, and significant improvements in access to quality higher education • Establish a Higher Education Quality Assurance Agency to lead the development of national quality standards for higher education and undertake quality assurance assessments of all HEIs	• Focus on supporting universities by resolutely proceeding with internationalisation by inviting educational units from foreign universities, establishing joint graduate schools, actively employing foreign faculty members, and increasing the number of courses taught in English • Establish a new system of government–industry collaboration that assists Japanese students studying overseas • Create human resource development bases corresponding to the needs of regional communities • Create educational bases that are open to the international community • Foster technicians and managers who will play a leadership role in Asia

The above table shows that policy makers believe that sending Myanmar's students abroad to study is the first priority for establishing partnerships with international universities, research centres, and other higher education institutions. However, Japan's reform plan shows that its first step is to invite educational units from foreign universities to Japan, establish joint graduate schools, actively employ foreign faculty members, and increase the number of courses conducted in English. After that, they will work to establish a new system of government–industry collaboration, which assists Japanese students studying overseas. Myanmar's policy makers should adjust their plan to consider sending students from Myanmar

abroad to study and inviting foreign universities to instigate useful programmes within Myanmar.

Myanmar's very basic ideas for strengthening the governance and management capacity cannot effectively solve the problems facing Myanmar's higher education system, because the factors of autonomy, accountability, and quality assurance are consistently repeated year after year in Myanmar's higher education development process. The Japanese programme components for strengthening management capacity based on the needs of regional and international communities, and the creation of future technicians and managers who will play a leadership role in Asia, should be of interest to Myanmar. Myanmar's policy makers must modify their basic ideas to make them more realistic and effective.

Category B: Current Situation (Quality)

Table 4.5 Comparison between higher education reforms in Myanmar and Japan based on quality

Myanmar Higher Education Reform Plan	Japanese Higher Education Reform Plan
• Establish a National Research and Innovation Fund and Research and Development Centres at HEIs to benefit university teaching and learning and develop university-managed income streams • Develop a policy and strategy for world class national universities and comprehensive universities • Upgrade the facilities at selected HEIs • Enhance the status of e-learning centres and e-libraries in HEIs • Improve the effectiveness of the distance education system • Undertake professional development for faculty and laboratory technicians	• Develop international-level educational and research bases in which excellent educators compete and foster human resources • Create Japan's top research bases through the development of interdisciplinary programmes and inter-university collaborations • Create innovation through the implementation of cutting-edge research developed within universities • Establish a community revitalisation organisation that serves as the community's think tank to solve various issues • Create a system that allows national universities to invest in companies supporting university-launched venture businesses • Formulate a "Strategy for Developing Human Resources in Science and Technology" • Universities receiving priority assistance for advancing the reform must secure an annual salary system and appropriate performance assessment system

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In this comparison of Myanmar's and Japan's higher education reform plans, each side of the programme components is suited to its country's social and economy conditions. Because Myanmar is a developing country, it needs to strengthen its basic research and innovation funds, develop a policy and strategy for world class national universities and comprehensive universities, enhance the status of e-learning centres and e-libraries in HEIs, and so on. Japan is a developed country, so it requires the development of international-level educational and research bases, whereby excellent educators compete and foster human resources, and the creation of top research bases through the establishment of interdisciplinary programmes and inter-university collaborations, for example.

Category C: Current Situation (Equitable Access)

Table 4.6 Comparison between higher education reforms in Myanmar and Japan based on equitable access

Myanmar Higher Education Reform Plan	Japanese Higher Education Reform Plan
• Create a good teaching and learning environment at HEIs • Promote student support programmes	• Establish a new system of government–industry collaboration that assists Japanese students studying overseas • Focus on supporting universities in resolutely proceeding with internationalisation by inviting educational units from foreign universities, establishing joint graduate schools, actively employing foreign faculty members, and increasing the number of courses carried out in English • Strategically accept foreign students by defining priority regions

To expand equitable access to higher education, Myanmar's policy makers must consider in depth the role of foreign students with very high standards of education who wish to study in Myanmar, as demonstrated in Japan's reform plan. Myanmar's policy makers must also create a new system for students studying overseas and invite foreign universities to become joint universities by hiring foreign faculty members to improve Myanmar's higher education system for students.

4.6 Conclusion

This research paper can guide Myanmar's government in making the higher education system meet the global standards and support it in becoming a systemic problem solver for the Myanmar higher education system. Moreover, this research highlights the positive and negative points of Myanmar's higher education system based on VIP interviews with the Department of Higher Education in Myanmar. At the beginning, the research asked the following question:

How can the new governmental policy effectively overcome Myanmar's poor higher education system?

Therefore, for the future development of higher education in Myanmar, the government should follow the steps below in order:

Step 1: totally change the government policy towards placing authority in the hands of university leaders, deans, and faculty members;

Step 2: allow citizens to open private universities officially without any delay;

Step 3: provide public and private universities with enough financial support;

Step 4: urgently change the curriculum based on new knowledge that has been tested, criticised, and evaluated by academic persons in many different fields.

Furthermore, Myanmar's policy makers should adjust their reform plan to consider sending Myanmar's students abroad to study while also inviting foreign universities to run useful programmes within Myanmar. Myanmar's policy makers must modify their basic ideas by focusing on Japan's interesting programme components for strengthening the management capacity based on the needs of regional and international communities, thereby creating future technicians and managers who will play a leadership role in Asia. Myanmar's policy makers must consider in depth the role of foreign students with very high standards of education who wish to study in Myanmar, as demonstrated in Japan's university reform plan.

Chapter 5: Analysing the Progress of Myanmar's New Higher Education Policy through a Case Study

5.1 Overview

This chapter analyses the progress of Myanmar's new higher education policy through a case study. For this case study, Mandalay Technological University (MTU), one of the senior engineering universities in Myanmar, is selected. MTU offers undergraduate and postgraduate programmes in engineering and accepts between 300 and 350 new undergraduate students every academic year. In 2018, 2000 individuals studied at MTU, and the total number of lecturers was 330. In 2019, the number of professors and lecturers at MTU increased by around 10 lecturers, who transferred from other universities in Myanmar.

In Myanmar, the government spent around 9% of the 2018–2019 national budget on education. This was considerably better than the military government's expenditure of 1% of the 2011–2012 national budget on education (Myanmar Times 2019). In addition to this, the Myanmar government allocated 80% of the education budget to lower education, 15% to higher education, and 5% to the other 10 education departments, respectively.

This MTU case shows the real progress of Myanmar's higher education policy reform plan, called the National Education Strategic Plan, which started in 2016. The reform plan contains 3 strategies, and each strategy consists of components. The MOE claims that there will be positive outcomes within 5 years for "the first phase", which will end in 2021. Phase 2 will start in 2022 and finish in 2026. In phase 2, the MOE believes that it will achieve its objectives and the goal of reaching world-class university levels. Therefore, in this case study, the researcher focused on the 3 key strategies of higher education reform to identify the actual improvements of Myanmar's higher education system at MTU, one of the top universities in Myanmar, within a time frame of 2 years.

The methodology of this study is to analyse the real progress of the university reform through an interview survey of MTU's rector, professors, and heads of international relationship (IR) and HR departments conducted in April 2019.

5.2 Analysing Strategy 1 and its Five Policy Components

Strategy 1: Strengthen higher education's governance and management capacity

Policy 1: Undertake overseas study tours to document best practices and establish partnerships with international universities, research centres, and other higher education institutions

This policy is not a new policy, because it already existed at the time of the previous military government. In 2011, the first democratic government gave many opportunities to all universities' professors and lectures, who could freely choose to apply online to foreign scholarship programmes, attend international seminars, or make MOUs with foreign universities by themselves, and then they were able to undertake the above processes without reporting to the Ministry of Education. Conversely, at the present time, it is very difficult to apply for those processes, because the MOE requires them to submit all applications 45 days

in advance to gain approval and many of their applications are delayed or rejected or they are asked to review them multiple times to receive approval.

When a university makes the decision to sign an MOU with a foreign university, firstly its MOU must be sent to the MOE for review, secondly the MOE sends it to the government lawyers' department, thirdly it sends it to the National Education Committee (NEC), and finally it sends it to the Rectors Committee to obtain final approval. Therefore, it is obvious that Myanmar's higher education policy is still strictly centralised. It is surprising that one of MTU's professors states that she does not see any improvement in policy 1 so far and she thinks the situation is becoming worse and worse.

Policy 2: Establish a National Institute for Higher Education Development (NIHED) to improve higher education's governance and management, build individual skills, and strengthen institutional capabilities

In 2017, the government set up a new committee, called the Rectors Committee. This committee acts as a coordinator between all public universities and the Ministry of Education to achieve more positive policy outcomes. However, the committee does not have any authority or power to make any key decisions and is just an advisory group for both sides.

Policy 3: Strengthen the governance of HEIs through university charters and university councils

The following facts are obtained from studying the real circumstances at MTU in April 2019. According to MTU, the MOE keeps creating more councils and a new committee will be set up soon. This new committee might be called the "National Accreditation Quality and Assurance Committee" (NAQAC).

Policy 4: Strengthen the autonomy and accountability of HEIs to realise more efficient and effective management, better value for money, and significant improvements in access to quality higher education

Myanmar's new government claims that there are three levels of freedom in higher education. The first one is called academic freedom, the second is financial freedom, and the third is called administrative freedom. However, one of the university heads reported that the country is still struggling to attain the first level fully and the other two levels are still too far away to accomplish.

Although the government says that there is administrative freedom, MTU does not agree, because the university does not have the authority or autonomy to fill 150 permanent vacancies for lab technicians. According to MTU, it has 48 permanent lab technicians, but 298 permanent job vacancies exist. Although MTU wants to hire full-time lab staff for its laboratories, there are still very complex hierarchy processes involved in hiring a permanent lab technician. The process consists firstly of MTU nominating one member of staff to the MOE to gain approval and secondly the MOE sending an approval letter to the cabinet for final approval. Even though MTU recently submitted a list of nominated staff members, it has not received a reply yet. This could be a problem if the government does not have a sufficient budget to employ them.

Policy 5: Establish a Higher Education Quality Assurance Agency to lead the development of national quality standards for higher education and undertake quality assurance assessments of all HEIs

Myanmar's new government requires all public universities to upgrade their quality by attaining more international quality standards certificates; so far, only five universities in Myanmar have ISO 9001: 2015, including MTU. In 2017, MTU founded the QMR¹⁹ office for further development of quality assurance in its higher education.

The main goal of strategy 1 is to upgrade higher education's management capability. To achieve some positive outcomes for this mission in 5 years, the education policy makers are trying to set up 5 policy roadmaps. After 3 years, it will be a good time to look back at the real changes in higher education's governance and management capacity in Myanmar. The following table shows a comparison of policies 1, 2, 3, 4, and 5 and the real conditions of higher education's management capability from 2016 to 2019.

Table 5.1 A comparison of policy 1 and the current conditions of higher education's management capability from 2016 to 2019

Policy 1 for strategy 1	Current conditions in 2019
• Best practice of overseas study • Build partnerships with international universities • Build partnerships with international research centres • Build partnerships with other international higher education institutions	• This policy is not a new policy. • Between 2016 and 2017, there were more opportunities for all university educators to go abroad to build partnerships with foreign universities without reporting to the MOE. • In 2018 and 2019 (the present time), there are long processes for universities to obtain approval to visit foreign countries. • At the present time, to gain approval to travel to foreign countries, make MOUs with international universities, or invite international universities to visit any of Myanmar's universities, it is necessary to report to the MOE 45 days in advance and pass through 4 departments. They are the MOE, the government lawyers' department, the National Education Committee, and the Rectors Committee. • Most of the above approvals are delayed or rejected (the reason is that the Ministry of Education is too busy to handle many similar cases).

Source: the author's interview.

¹⁹ Quality management relationship.

By studying the above comparison, it can be seen that the current situation of Myanmar's higher education management system deviates from the achievement of some positive outcomes in 2021.

Table 5.2 A comparison of policy 2 and the current conditions of higher education's management capability from 2016 to 2019

Policy 2 for strategy 1	Current situation in 2019
• Establish a National Institute for Higher Education Development (NIHED) • Build individual skills and strengthen institutional capabilities	• In 2017, the government set up a new committee called the Rectors Committee. • This committee acts as a coordinator between all public universities and the Ministry of Education to achieve more positive policy outcomes. • However, the committee does not have any authority or power to make any key decisions and is just an advisory group for both sides.

Source: the author's interview.

Based on the above comparisons between policy 2 and the real situation, the more new departments are formed, the weaker the management capacity becomes. This is because those new groups do not have any authority or power to achieve stronger management capacity outcomes. Therefore, they just keep on creating more hierarchical processes, reducing the effectiveness and efficiency of governance and management abilities.

Table 5.3 A comparison of policy 3 and the current conditions of higher education's management capability from 2016 to 2019

Policy 3 for strategy 1	Current situation in 2019
• Strengthen the governance of HEIs through university charters and university councils	• This new committee will be created and called the NAQAC.

Source: the author's interview.

By comparing the above policy 3 and the real conditions, it can be determined that higher education policy makers will soon create a strong committee to strengthen their management capacity. However, the problem is that, after 2 years have passed, they will need yet more new committees to strengthen their governance systems.

Table 5.4 A comparison of policy 4 and the current conditions of higher education's management capability from 2016 to 2019

Policy 4 for strategy 1	Current situation in 2019
• Strengthen autonomy and accountability • Realise more efficient and effective management, better value for money, and significant improvements in access to quality higher education	• Myanmar's new government claims that there are three levels of freedom in higher education: 1) academic freedom, 2) financial freedom, and 3) administrative freedom. • However, one university is still struggling to attain the first level and

	the other two levels are still too far away to accomplish. • To hire one full-time lab technician for a university laboratory, the university needs to wait for a long time to obtain approval, because the nomination letter will be reviewed not only by the MOE but also by the cabinet. • Even though MTU submitted a list of nominated staff names recently, it has not received a reply.
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Source: the author's interview.

From a comparative analysis of the above factors, it is apparent that the universities in Myanmar are still facing less autonomy and accountability, so some good achievements in the development of higher education in 3 years' time are still vague. This is because the government does not have a sufficient budget to support the education reform process.

Table 5.5 A comparison of policy 5 and the current conditions of higher education's management capability from 2016 to 2019

Policy 5 for strategy 1	Current situation in 2019
• Establish a Higher Education Quality Assurance Agency to lead the development of national quality standards for higher education and undertake quality assurance assessments	• Upgrading quality by obtaining more international quality standards certificate; so far only five universities in Myanmar have ISO 9001; 2015, including MTU. • In 2017, MTU founded the QMR office for further development of quality assurance in its higher education.

Source: the author's interview.

There are over 150 public universities in Myanmar. Among them, only 5 universities have obtained ISO certification. Therefore, fewer than 5% of universities have ISO accreditation.

5.3 Analysing Strategy 2 and its Six Policy Components

Strategy 2: Improve the quality and relevance of higher education

Policy 1: Establish a National Research and Innovation Fund and Research and Development Centres at HEIs to benefit university teaching and learning and develop university-managed income streams

The following facts are obtained from studying the real situation at MTU in April 2019. There has been no improvement and last year MTU received a research fund of 3000 USD, which had to be divided equally between 13 engineering departments.

The government never allows any university to make money by itself and has banned financial involvement with any private company or association. Moreover, the government always warns universities not to share their campus with any private university.

Policy 2: Develop a policy and strategy for world-class national universities and comprehensive universities

A big budget and enough funds are the main issues in this matter regarding world-class national universities. So far nothing has improved.

Policy 3: Upgrade facilities at selected HEIs

One of the professors at MTU stated that recently the facilities of HEIs have been declining compared with previous years.

Policy 4: Enhance the status of e-learning centres and e-libraries in HEIs

MTU receives some support from one foreign university to set up an e-libraries link, but it does not link directly to MTU and access has to pass through the foreign university's website.

Policy 5: Improve the effectiveness of the distance education system

MTU does not have a distance education system.

Policy 6: Undertake professional development for faculty and laboratory technicians

No improvement has been achieved.

The main goal of strategy 2 is to improve the quality of higher education. To achieve some positive outcomes for this assignment in 5 years, the education policy makers have created 6 policy roadmaps. The following tables show the comparisons of policies 1, 2, 3, 4, 5, and 6 and the current conditions of higher education's quality improvement from 2016 to 2019.

Table 5.6 A comparison of policy 1 and the current conditions of higher education's management capability from 2016 to 2019

Policy 1 for strategy 2	Current situation in 2019
Establish a National Research and Innovation Fund and Research and Development Centres to benefit university teaching and learning and develop university-managed income streams	- No improvement has been achieved, and last year MTU received a research fund of 3000 USD, which had to be divided between 13 engineering departments. - The government never allows any university to make money by itself.

Source: the author's interview.

It will be very hard to achieve improvements of the above policy 1 in 5 years, because, without enough financial support from the government, the deviation from achieving good quality of higher education will increase.

Table 5.7 A comparison of policy 2 and the current conditions of higher education's management capability from 2016 to 2019

Policy 2 for strategy 2	Current situation in 2019
• Develop a policy and strategy for world-class national universities and comprehensive universities	• A big budget and enough funds are the main issue in this matter regarding world-class national universities. • So far nothing has improved.

Source: the author's interview.

It is a fact that every movement for developing a policy and strategy for Myanmar's universities needs a large amount of money or budget. The only way to ensure some positive outcomes for higher education is to increase the national budget from 9% to over 20% in 3 years. The current situation shows that there has been no improvement in universities' status as world class institutions.

Table 5.8 A comparison of policy 3 and the current conditions of higher education's management capability from 2016 to 2019

Policy 3 for strategy 2	Current situation in 2019
• Upgrade facilities at selected HEIs	• The facilities of HEIs have been decreasing recently compared with previous years.

Source: the author's interview.

It is no surprise that the facilities have been declining, because Myanmar has been facing many internal and external problems, such as the country's civil wars, the Rakhine State problem, and so on. The above matters have seriously affected Myanmar's economy and resulted in weak finances to support better-quality higher education. Therefore, there is still a long road ahead to receive some positive outcomes within the next 3 years.

Table 5.9 A comparison of policy 4 and the current conditions of higher education's management capability from 2016 to 2019.

Policy 4 for strategy 2	Current situation in 2019
• Enhance the status of e-learning centres and e-libraries in HEIs	• MTU receives some support from one foreign university to set up an e-libraries link. • However, it does not link directly to MTU but has to pass through that foreign university's website.

Source: the author's interview.

A university must have own internet access for e-learning and e-libraries to boost its education quality. Even MTU, one of the most prestigious universities in Myanmar, still does not have its own e-library links. Therefore, the current situation is not healthy enough to achieve some positive results in 3 years' time.

Table 5.10 A comparison of policy 5 and the current conditions of higher education's management capability from 2016 to 2019

Policy 5 for strategy 2	Current situation in 2019
• Improve the effectiveness of the distance education system	• MTU does not have a distance education system.

Source: the author's interview.

Myanmar's higher education system for engineering is similar to that of India in that there is no room for distance education for engineering degrees (B.Tech. or B.E.). This is because engineering, computing, and IT degrees are professional and an engineering major takes 2 years longer than regular arts and science majors. Not having a distance education system is the only way to keep a good quality of engineering degrees in Myanmar. This policy 5 is only focused on arts and science universities in Myanmar.

Table 5.11 A comparison of policy 6 and the current conditions of higher education's management capability from 2016 to 2019

Policy 6 for strategy 2	Current situation in 2019
• Undertake professional development for faculty and laboratory technicians	• Nothing has improved so far.

Source: the author's interview.

It is very important for a university to implement the above policy. The current situation in MTU shows no positive signs that improvement will be achieved in the quality of the university for another 3 years.

5.4 Analysing Strategy 3 and its Two Policy Components

Strategy 3: Expand equitable access to higher education

Policy 1: Create a good teaching and learning environment at HEIs

It is impossible to create good teaching capacities of lecturers, because every 4 years they have to transfer from their current university to another. When they arrive there, they have to teach subjects based on the requirements of the university. However, because lecturers who are far away from big cities always want to come back to work in the city universities, no government in Myanmar has solved this problem so far.

Policy 2: Promote student support programmes

No such student support programmes exist at MTU.

The main goal of strategy 3 is to expand equitable access to higher education. To reach this stage in 5 years, the education policy makers have created 2 policy roadmaps. The following tables show the comparisons of policies 1 and 2 and the current conditions of higher education's increasing equitable access from 2016 to 2019.

Table 5.12 A comparison of policy 1 and the current conditions of higher education's management capability from 2016 to 2019

Policy 1 for strategy 3	Current situation in 2019
Create a good teaching and learning environment	- It is impossible to create good teaching capacities of lecturers because every 4 years they have to transfer from their current university to another. - When they arrive there, they have to teach subjects based on the requirements of the university. - Because the lecturers who are far away from big cities always want to return to work in the city universities, no government in Myanmar has solved this problem so far.

Source: the author's interview.

It is very hard to reform this policy to achieve some positive outcomes in 5 years. The best way will be to allow the opening of more private universities in Myanmar. However, there are still no official private universities in Myanmar.

Table 13 A comparison of policy 2 and the current conditions of higher education's management capability from 2016 to 2019

Policy 2 for strategy 3	Current situation in 2019
Promote student support programmes	No such student support programmes exist at MTU.

Source: the author's interview.

Here a strong judgement can be made: Myanmar is still a very long way from achieving all these positive outcomes, which may take more than 10 years.

5.5 Summary

The NESP consists of 3 strategies and 13 policy components. The Myanmar Ministry of Education claims that some positive outcomes will be achieved within 5 years from 2016 to 2021. The first phase will end in the next 3 years (2021). This paper analyses the actual improvements of Myanmar's higher education system achieved within a 2-year time frame (2016–2018).

Many interesting points are discovered. In view of **strategy 1** and its 5 policy components, it is planned to upgrade higher education's management capacity. The fact is that the current situation of Myanmar's higher education management system deviates from the path towards achieving positive outcomes in 2021. At the present time, the MOE is more centralised than before in that gaining approval for relationships with foreign universities takes 45 days. It has also set up more non-powerful committees, such as the Rectors Committee and the "National Accreditation Quality and Assurance Committee" in the higher education policy. Although

Myanmar's new government claims that there are three levels of freedom in higher education – 1) academic freedom, 2) financial freedom, and 3) administrative freedom – even the first level is hard to attain. Additionally, only 5 universities in Myanmar hold ISO certification.

Regarding **strategy 2** and its 6 policy components, the aim is to improve the quality of higher education. As a matter of fact, the current situation shows that it will still be very hard to achieve some improvements of the above policies in 5 years, because, without enough financial support from the government, the deviation from the achievement of good quality of higher education is increasing. According to the case study of MTU, in 2018, the government only provided 3000 USD as a research fund, which had to be divided equally between 13 engineering departments. The reason for the weak finances to support universities is that Myanmar's government has been facing many internal problems, such as the country's civil wars and the Rakhine State crisis.

In view of **strategy 3** and its 2 policy components, equitable access to higher education is to be arranged. However, an insufficient budget from the government for higher education is again the main problem. It is impossible to create good teaching capacities of lecturers because they have to transfer from their current university to another every 4 years; when they arrive there, they have to teach subjects based on the requirements of the university. This transfer problem cannot be solved, because, to be fair, the lecturers who are sent to border areas always want to return to work in the main city universities, so no government in Myanmar has been able to solve this problem at all. Here a strong judgement can be made: there is still a very long road ahead to achieve all the positive outcomes, and it may take more than 10 years.

Chapter 6: Questionnaire Survey and Case Study of SMEs

This chapter intends to accomplish the objectives of the study by investigating various dimensions of the relationship between higher education and manufacturing industrial development in Myanmar. This research asks the following question: how are job performance, human resource development, and attitudes towards the strengths of employees' performance in manufacturing factories affected by the educational background of top-level managers?

6.1 Methodology

6.1.1. Primary Data Analysis

The main objective of this study is to analyse higher education's influence on the improvement of the business performance process of manufacturing factories based on primary data collected from a survey of factories. Keeping in mind the objective of this study, the dedicated questionnaire was developed and used as an instrument to gauge the factors affecting higher education's influence. The questionnaire was sent to more than 135 top-level managers of manufacturing companies of which 105 responded, and 100 out of 105 completed questionnaires were verified, checked, and matched manually. This chapter discusses the findings, which highlight higher education's influence on factories' performance in different manufacturing industries in the Mandalay Industrial Zone through a questionnaire survey that was conducted in August 2018.

6.1.2. Instrument Development

An appropriate instrument for this report was developed in the form of a questionnaire that consists of questions to examine with a target sample group. The questionnaire is presented in Appendix 1.

6.1.3. Rationale of the Study

There are various features that can effectively determine the relationship between higher education and manufacturing industrial development. For this research, the findings of Jackson (1990), who identifies three factors that play key roles in connecting higher education and industrial development, are studied to analyse the data. The three factors are: 1) the supply of high-level manpower and the updating of those already in the workforce; 2) research and development; and 3) technology transfer. With these in mind, the research investigates the relationship between higher education and manufacturing industrial development in Myanmar.

6.1.4. Aims of the Study

The aim of this study is to investigate the relationship between higher education and manufacturing industrial development. This study was conducted with one sample group consisting of 100 people.

This independent study's results emerged with respect to the following aspects: 1) to investigate the relationship between higher education levels of factories' top-level managers and higher and lower education performance in three years: annual sales, annual net profit, productivity, quality of products, and market share; 2) to examine the relationship between top-level managers' perceptions of the strengths and the key success factors of industrial performance and having a good higher education, HR training in the company, the quality of

trainers, sharing with others in the company after attending training, hard work without higher education, hard work with higher education, honesty without higher education, honesty with higher education, a lot of experience without higher education, a lot of experience with higher education, having a love affair with the Managing Director/owner, having local higher education, having international/foreign education, punctuality without higher education, and punctuality with higher education; and 3) to examine the relationship between managing directors' perceptions and the strengths of R&D: achieving a new product development process, finding new ways to build up competitive advantages, boosting the vision and objectives of the factory, achieving better outcomes for investors and overall being more innovative than the competitors, and easily leading to highly valued technologies, strategies, and designs.

6.1.5. Population Definition and Sample

The sample group was selected from 105 managing directors in the Mandalay Industrial Zone. The reason for choosing the Mandalay Industrial Zone for collecting data for this study was that all the factories in the zone belong to local Myanmar owners, unlike the Yangon Thilawa special economic zone, which is full of foreign factories. Furthermore, Mandalay is the second-largest city and the formal capital of Myanmar. Mandalay is also a major trade hub of Myanmar due to its central geographical location with a major highway from the border with China and India running through the region and onwards to Yangon. Along this route, which serves as one of the country's primary trade arteries, agricultural products as well as jade and gemstones are exported to nearby countries.

The total number of factories in the Mandalay Industrial Zone is 1257. Among them, there are 385 large-sized factories, 311 medium-sized factories, and 561 small-sized factories. There are 3 industrial zones in the Mandalay Industrial Zone: Zone 1 was established in 1990 with 700 factories, Zone 2 was established in 1999 with 670 factories, and Zone 3 was established in 2003. The total size is 1,306 acres, and 15,944 labourers worked in the zone in 2017. The overall investment of private factories in the Mandalay Industrial Zone was 1.7 billion USD. The following are some types of industries represented in the zone: food processing, garments, construction, basic commodities, home commodities, raw materials, farm equipment and machinery, transportation, agricultural equipment, printing, wear-resistant casting steel balls, flour, detergent, and materials from oil.

6.1.6. Pretest of the Questionnaire

A questionnaire was employed as an instrument by the researcher. The pretest questionnaire was composed of twenty-nine questions, which explored facts, opinions, and the relationship between higher education and industrial development. Following the pretest, the questionnaire was distributed to small sampling group to test the members' understanding of the questions and their responses before the researcher proceeded to the next step. The questionnaire is provided in Appendix 1.

6.1.7. Final Questionnaire and Response Rate

The overall response rate from the sampling group was 85%. Although the author attempted to reach 150 subjects, 100 respondents completed all the items.

6.1.8. Data Collection Procedure

Two processes were followed. 1) In the approach process, the questionnaires were brought to the managing directors' offices for the selected subjects to complete. The researcher declared

the purposes of the study. The respondents had a free choice to participate in the study. 2) In the interviewing process, during the completion of the questionnaire, each subject was able to call the researcher to ask for clarification of any unclear items, as most respondents were not familiar with English; therefore, the researcher had to explain the questionnaire again using the Myanmar language.

6.2 Data Analysis

This section deals with the analysis and discussion of the collected data. The first part provides an overview of the differences in the characteristics of the sample based on education criteria. The second part undertakes a data analysis of the relationship between higher education levels and perceptions of top-level managers and industrial performance development in terms of productivity, profit, and quality. The third part analyses a conceptual model of the relationship between top-level managers' attitudes towards evaluating the strengths of employees' successful performance in the factories and the importance of R&D in manufacturing industrial development.

6.2.1. Characteristics of the Survey Respondents: Levels of Education and Positions

The following frequency table of education levels shows that twenty-five out of one hundred respondents (25%) have a lower education level (Grade 1–Grade 10), while seventy-five out of one hundred respondents (75%) have higher education (bachelor's and master's degree).

Table 6.1 Levels of education

Education level	Numbers of respondents
Lower education (Grade 1–Grade 10)	25
Higher education (Bachelor's degrees–Ph.D. degrees)	75
Total	100

Source: The author's questionnaire survey.

The following frequency table of positions shows that fifty-six out of a hundred respondents (56%) are managing directors of the factories, whereas forty-three respondents are in the position of CEO. Only one respondent (1%) is the general manager.

Table 6.2 Positions

Position	Numbers of respondents
Managing Director	56
CEO	43
General Manager	1
Total	100

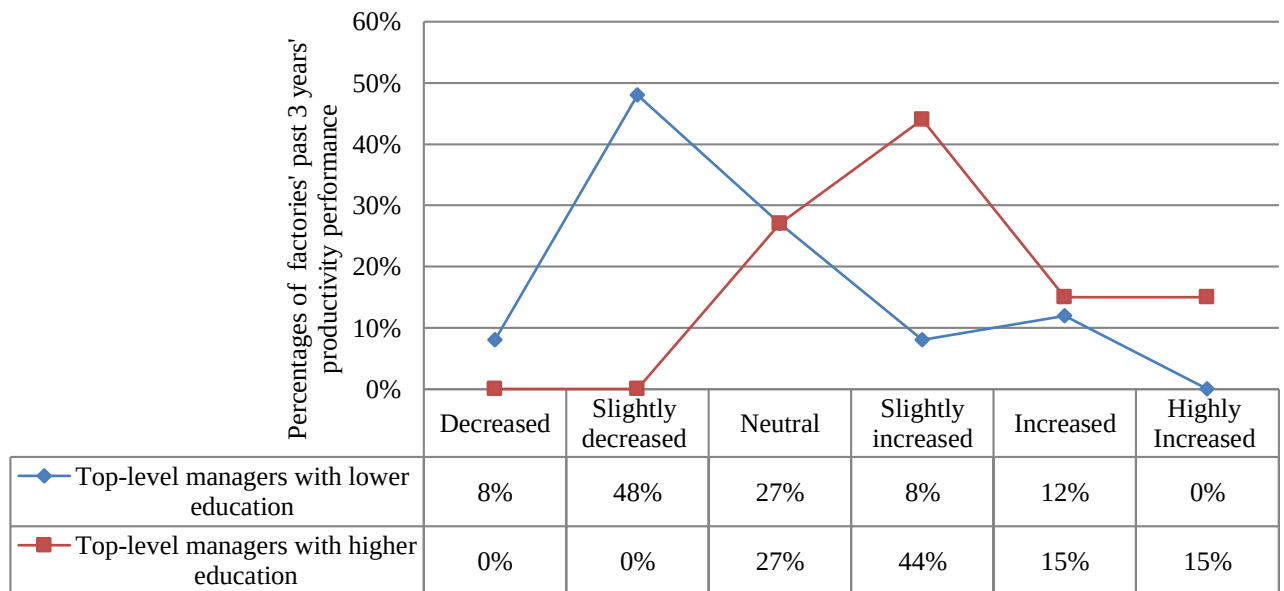
Source: The author's questionnaire survey.

6.2.2. Analysis of the Connections between Top-Level Managers with Higher Education and Job Performance and Top-Level Managers with Lower Education and Job Performance in Terms of the Productivity, Profit, and Quality of Manufacturing Factories

This section investigates the connections of top-level managers with higher education and job performance and top-level managers with lower education and job performance in terms of the productivity, profit, and quality of manufacturing factories.

The respondents' ratings of the perceived impact variables were ranked as follows: (7) = highly increased, (6) = increased, (5) = slightly increased, (4) = neutral, (3) = slightly decreased, (2) = decreased, and (1) = highly decreased.

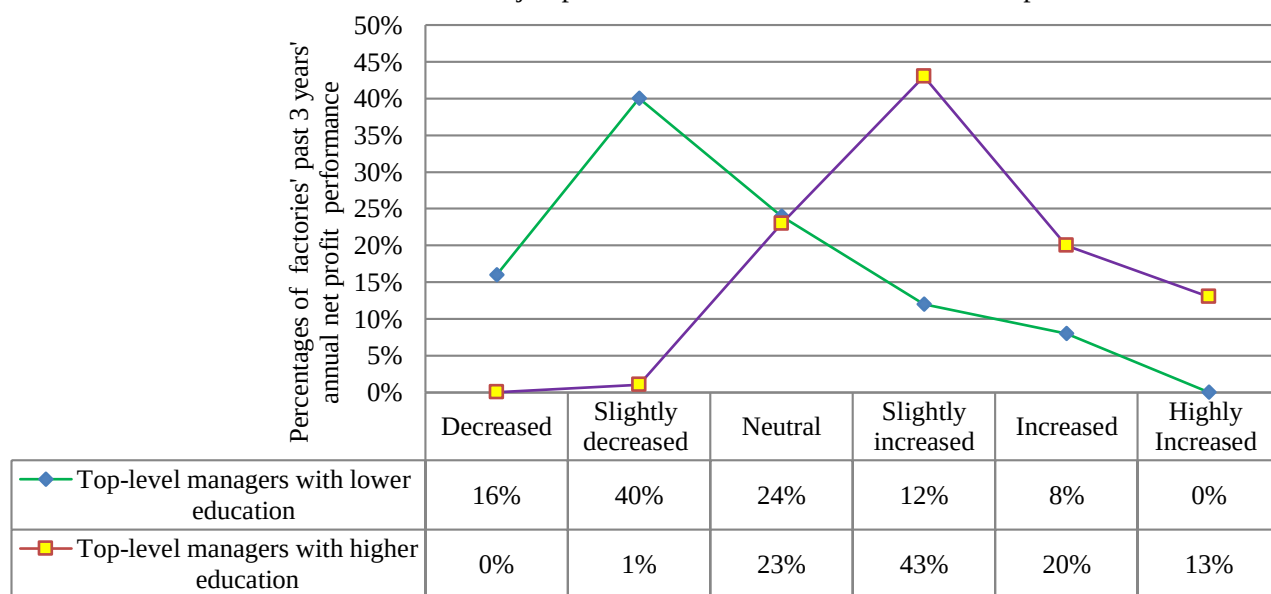
Figure 6.1 Connections of top-level managers with higher education and lower education and job performance in terms of productivity



Source: The author's questionnaire survey.

Figure 6.1 above shows that the productivity of factories is affected by the educational backgrounds of top-level managers. It indicates that 8% and 48% of productivity led by top-level managers with lower education have decreased and slightly decreased in the past 3 years, but none of the productivity led by top-level managers with higher education has decreased or slightly decreased in the past 3 years in the factories. Furthermore, 44%, 15%, and 12% of productivity led by top-level managers with higher education have slightly increased, increased, and highly increased, whereas 8%, 12%, and 0% of productivity led by top-level managers with lower education have slightly increased, increased, and highly increased. Thus, the productivity performance in the factories led by top-level managers with higher education is higher than the productivity performance in the factories led by top-level managers with lower education.

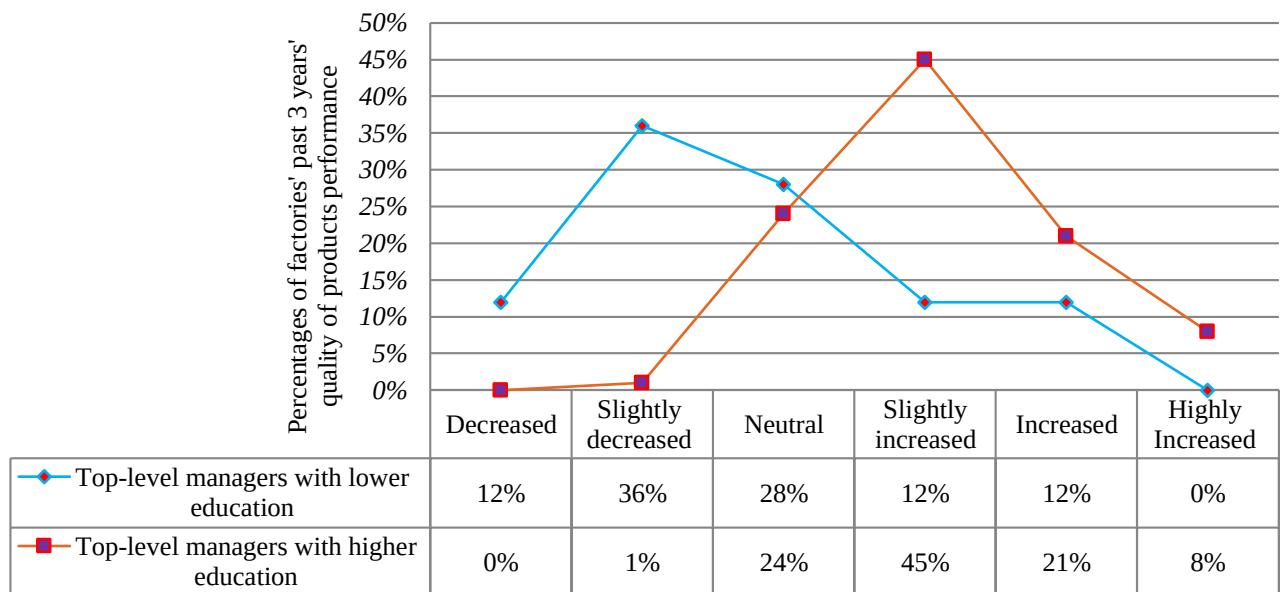
Figure 6.2 Connections of top-level managers with higher education and lower education and job performance in terms of the annual net profit



Source: The author's questionnaire survey.

Figure 6.2 above shows that the annual net profits of factories are affected by the educational backgrounds of the top-level managers. A total of 16% and 40% of the annual net profits led by top-level managers with lower education have decreased and slightly decreased in the past 3 years. However, none and 1% of the annual net profits led by top-level managers with higher education have decreased and slightly decreased in the past 3 years in the factories. In addition, 43%, 20%, and 13% of the annual net profits led by top-level managers with higher education have slightly increased, increased, and highly increased. On the other hand, 12%, 8%, and 0% of the annual net profits led by top-level managers with lower education have slightly increased, increased, and highly increased. Therefore, the performance of the annual net profits in the factories led by top-level managers with higher education is higher than the performance of the annual net profits in the factories led by top-level managers with lower education.

Figure 6.3 Connections of top-level managers with higher education and lower education and job performance in terms of the quality of products



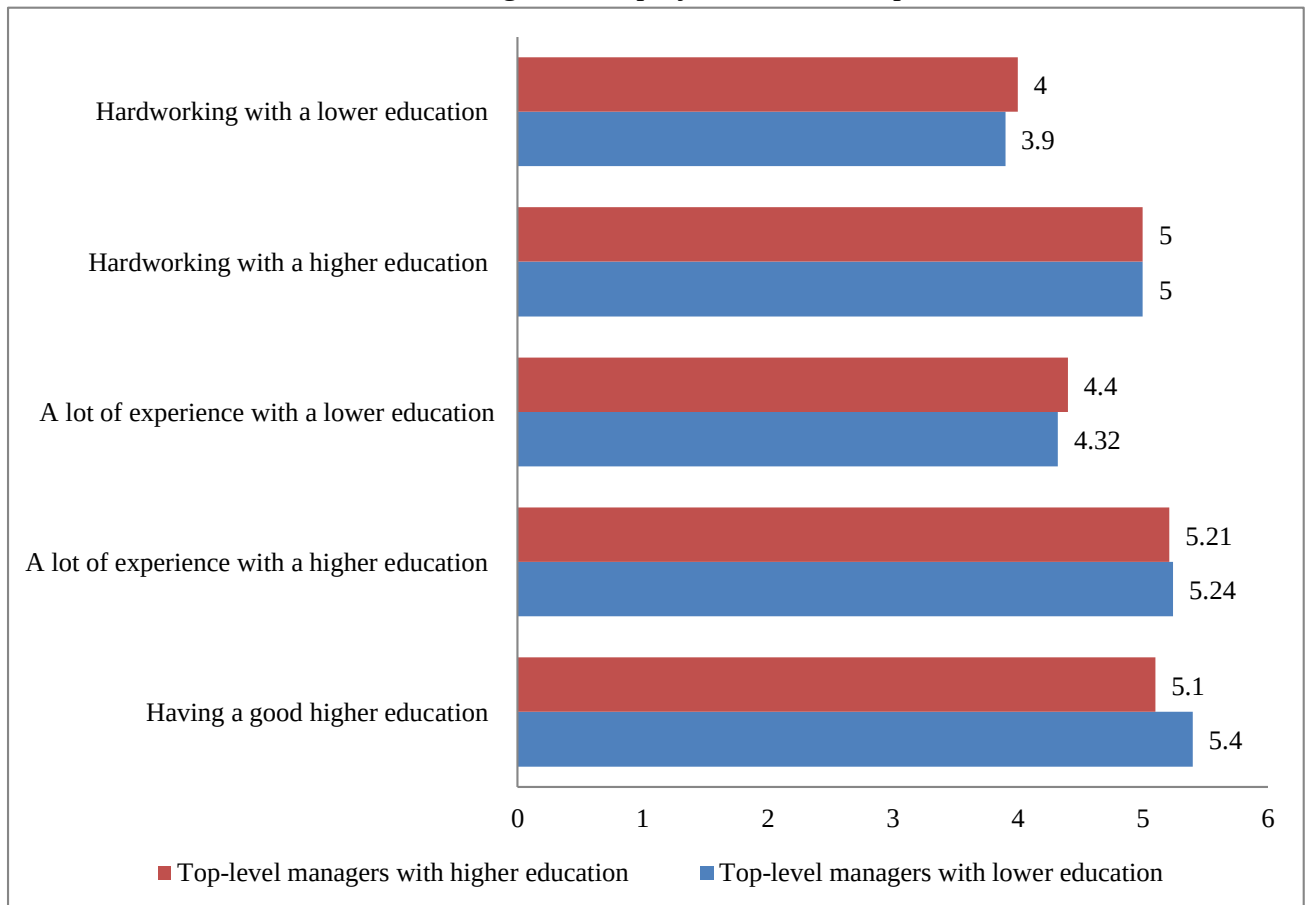
Source: The author's questionnaire survey.

Figure 6.3 above shows that the quality of factories' products is affected by the educational backgrounds of the top-level managers. It indicates that 12% and 36% of the quality of products led by top-level managers with lower education have decreased and slightly decreased in the past 3 years. In contrast, none and 1% of the quality of products led by top-level managers with higher education have decreased and slightly decreased in the past 3 years in the factories. Moreover, 45%, 21%, and 8% of the quality of products led by top-level managers with higher education have slightly increased, increased, and highly increased. On the contrary, 12%, 12%, and 0% of the quality of products led by top-level managers with lower education have slightly increased, increased, and highly increased. Therefore, the performance of the quality of products in the factories led by top-level managers with higher education is better than the performance of productivity in the factories led by top-level managers with lower education.

6.2.3. Analysis of the Attitudes of Top-Level Managers with Higher Education and Lower Education towards the Strengths of Employees' Performance in Manufacturing Factories

This section investigates the characteristics of the top-level managers with lower and higher education in relation to the strengths of employees' successful performance in their factories. Respondents' rating of the perceived impact variables is ranked as follows: (6) = strong impact, (5) = impact, (4) = slight impact, (3) = neutral, (2) = low impact, and (1) = no impact.

Figure 6.4 A comparison between the attitudes of top-level managers with higher and lower education towards the strengths of employees' successful performance



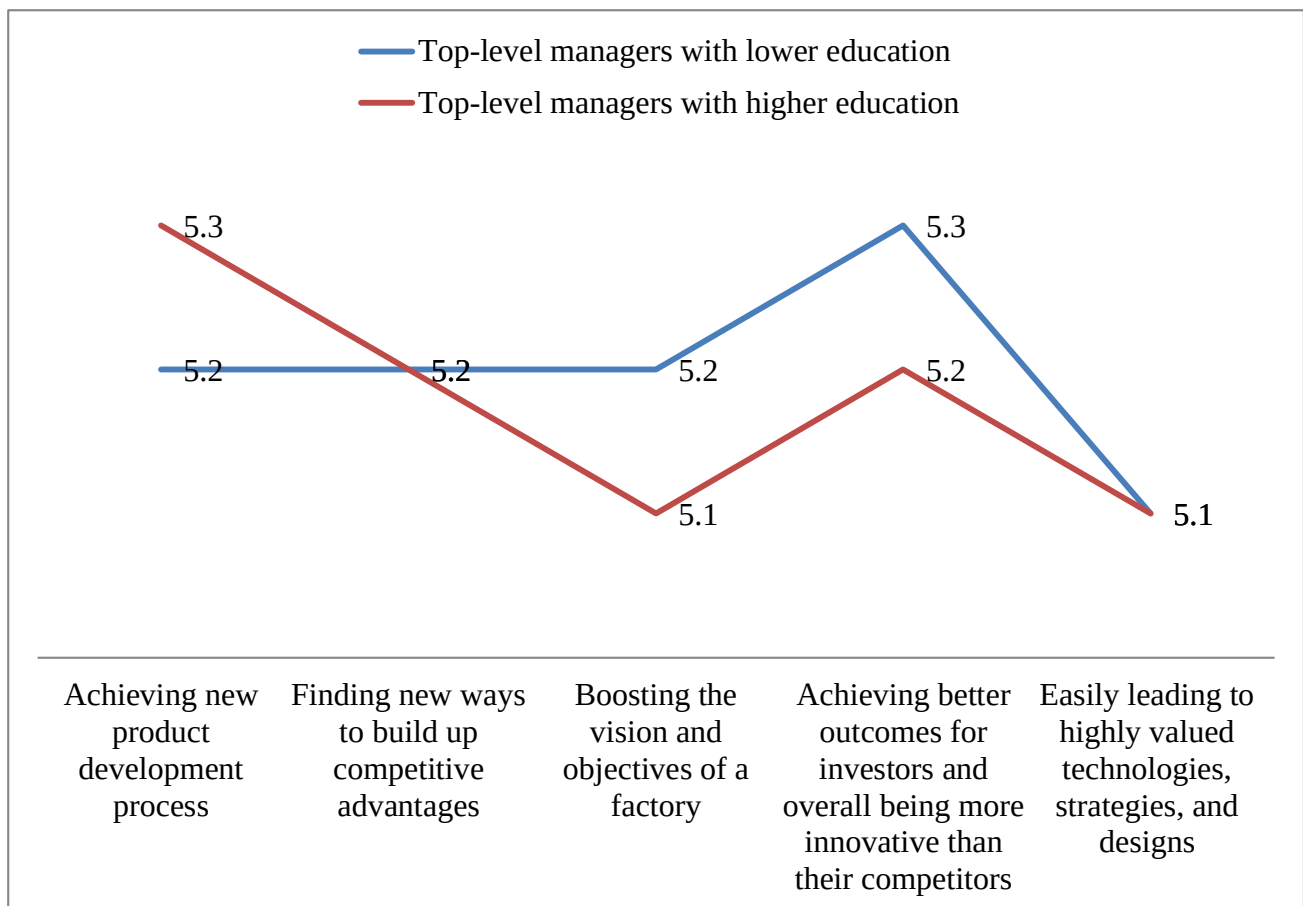
Source: The author's questionnaire survey.

The above Figure 6.4 shows that all the factors with higher education are 5 or above 5, but the factors with lower education are around 4 or lower than 4. Therefore, both top-level managers with lower education and top-level managers with higher education totally agree that higher education is more important than lower education in manufacturing industries' development processes.

6.2.4 Analysis of the Relationship between Education Levels (Lower and Higher Education) of Top-Level Managers and R&D for Industrial Development

This section investigates the relationship between lower and higher education levels of top-level managers and R&D departments in industrial development processes. Respondents' rating of the perceived impact variables is ranked as follows: (6) = strong impact, (5) = impact, (4) = slight impact, (3) = neutral, (2) = low impact, and (1) = no impact.

Figure 6.5 A comparison between the relationship of top-level managers with higher and lower education and R&D departments in industrial development processes



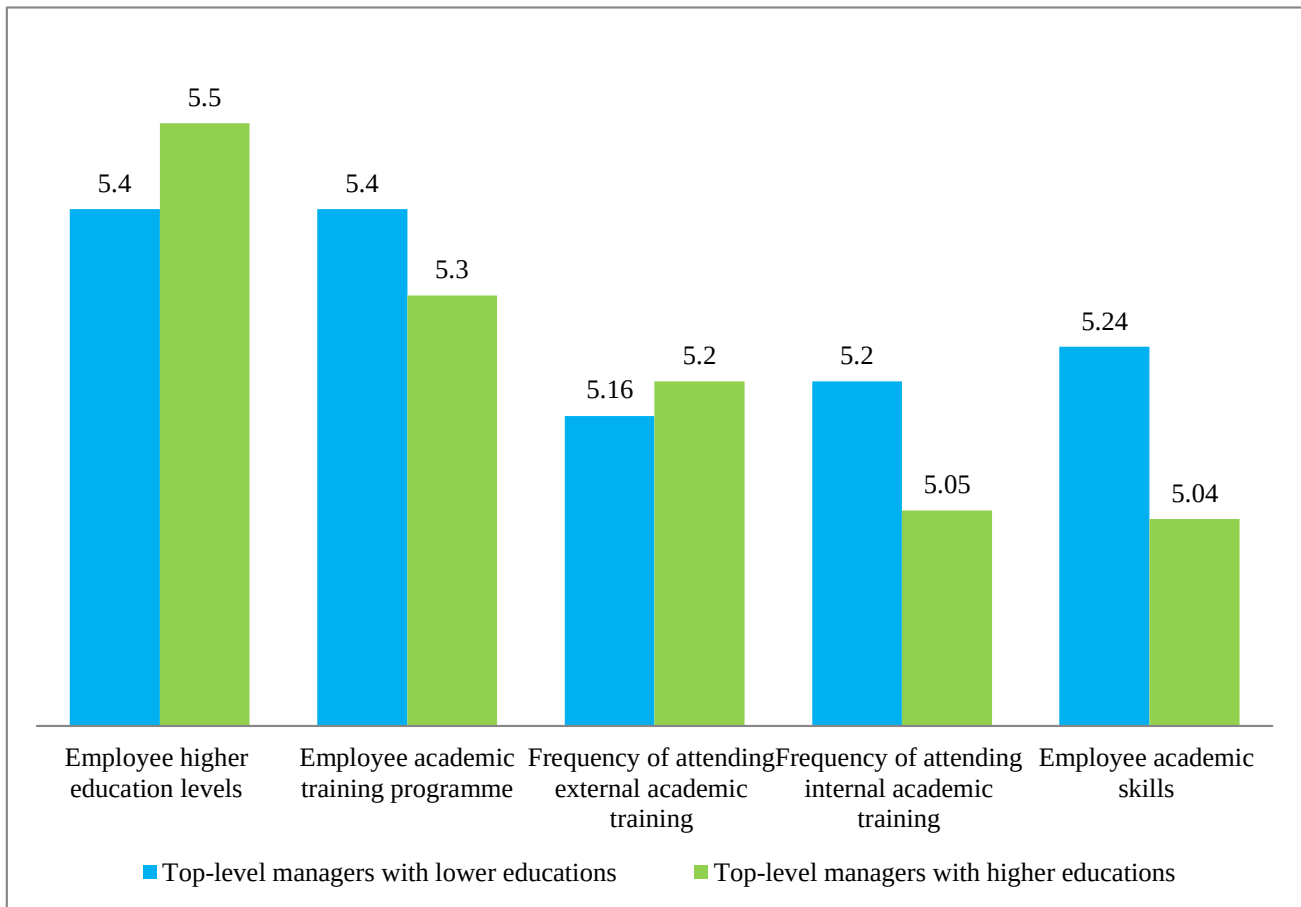
Source: The author's questionnaire survey.

The above Figure 6.5 shows that there are no significant differences between lower and higher education levels of top-level managers and R&D departments in relation to industrial development processes. However, it is a fact that many local Myanmar factories do not have strong R&D departments, because the country is still underdeveloped and investing in strong R&D departments can be expensive. Due to the R&D departments in Myanmar not being very strong in most factories, the discussion cannot include much information. There will be more discussion points about this relationship in the future when Myanmar is rich again.

6.2.5. Analysis of the Attitudes of Top-Level Managers with Higher Education and Lower Education towards the Strengths of Employees' Technical Skills and Improvement in the Ease of the Technology Transfer Process

This section investigates the characteristics of top-level managers with lower and higher education in relation to the strengths of employees' technical skills and improvement in the ease of transferring technology. Respondents' rating of the perceived impact variables is ranked as follows: (6) = very important, (5) = important, (4) = slightly important, (3) = neutral, (2) = low importance, and (1) = no importance.

Figure 6.6 A comparison between the attitudes of top-level managers with higher and lower education towards the strengths of employees' technical skills and improvement in the technology transfer process



Source: The author's questionnaire survey.

The above Figure 6.6 shows clearly that all the average factors of the attitudes of top-level managers with higher education and lower education towards the strengths of employees' technical skills and improvement in the ease of transferring technology are above 5. The results of all the features are located between very important (6) and important (5). Therefore, both top-level managers with lower education and top-level managers with higher education strongly believe that the strengths of employees' technical skills and improvement in the ease of the technology transfer process depend on employees who have a very strong academic educational background.

6.3 Summary

Through the above analysis, it can be concluded that there are four main findings. Firstly, the results of this study indicate that the performance of productivity, profit, and quality in the factories led by top-level managers with higher education is higher than that in the factories led by top-level managers with lower education. Secondly, the results of this study show that both top-level managers with lower education and top-level managers with higher education totally agree that higher education is more important than lower education in manufacturing industries' development processes. Thirdly, this study's results indicate that there are no significant differences between lower and higher education levels of top-level managers for

R&D departments' industrial development processes. Finally, the results of this paper show that top-level managers with lower and higher education strongly believe that the strengths of employees' technical skills and improvement in the ease of transferring technology definitely depend on employees who have a very strong academic background.

In Myanmar, to acquire more accurate results, the sample size should be expanded to at least 500 different types of factories. It may be of great benefit to Myanmar businesses to continue to study the usefulness of higher education, which can really help to upgrade their businesses effectively, and, since the study used 100 manufacturing factories, the results cannot be generalized to all other types of industries efficiently. This awareness can eventually bring about the growth of Myanmar manufacturing industries.

To study more details of the above findings concerning the role of higher education in industrial development, the following chapter 7 will analyse 10 cases of factories, carefully selected from the 100 manufacturing factories. These 10 factories are selected as case studies because their business has been growing very well in recent years.

Chapter 7: Discussion Issue (Three Models of Ten Cases)

7.1 Overview

In this chapter, 10 case studies of factories from the 105 questionnaire survey samples obtained in Mandalay, Myanmar, in Chapter 6 are selected to analyse the relationships between high-quality human resource development behaviours and academic education in Myanmar. The following case studies provide detailed information on 10 factories from the human resource development point of view. All the following 10 cases were visited and interviews carried out by the author between 18 March and 19 April 2019.

Case 1: Yi Mon Factory (Myanmar Traditional Dressmaker)

Business Overview

Yi Mon Factory (YMF), which makes silks and textiles, is a traditional Myanmar fabrics business. It was established in 2010 by Ms Yin Mon Khin. In the early 1980s, her relatives started a concern in textiles at Myit Nage, with 80 years of experience in the textile field. In 2010, she made various fabric items for the market, but, after 2010, she focused only on three main ready-made fabrics: textiles, embroidery, and silks. The fabrics included traditional Myanmar fabrics, 100 cotton fabrics, and the products were available throughout the Mandalay region. At that time, after she received raw materials, she had to travel to her friend's fabric machine factory to produce her products. In 2017, Yi Mon Factory commenced manufacturing high-quality fabrics independently with advanced technological machines.

Factory name	Yi Mon Factory
Date of establishment	December 2010
Investment capital until now	500,000 USD
Number of employees	20
Main products	Textiles, embroidery, and silks

History of the Factory

Ms Khin started her high-quality fabrics factory in 2017 with 1 machine and 10 workers. From 2017 to 2018, she faced many problems with the workers. Now, her factory is producing good-quality Myanmar textiles, embroidery, and silks every day with an average of 320,000 metres stitched per 12 hours. The factory runs for 24 hours a day, and the total amount of stitches made in 24 hours is 720,000. At the present time, Ms Khin runs her factory with her mother, Ms Than Than, and 20 workers.

Education Background of Ms Khin

Ms Khin graduated with a bachelor of science degree and specialised in botany at Mandalay University, Myanmar. When she worked in Singapore from 2006 to 2014, she received many certificates for management training. After she returned from Singapore, she joined the MJC (Myanmar Japan Centre) to take many short business courses, such as Knowledge

Management, Business Planning, Strategic Management, Case Methods, and Financial Management. She also obtained the Certificate of LCCI²⁰ Level 2²¹.

Jobs Experience of Ms Khin

Ms Khin worked in Singapore from 2006 to 2014 as an operation supervisor and marketing communicator in a cosmetic company. During her time in Singapore, she had the chance to attend many management and sales training courses provided by her company or external trainers. As her family's relatives had started a textile manufacturing business 60 years earlier, she grew up with this type of business and is quite familiar with these kinds of factory.

Challenges and Difficulties in Running the New Business

From 2017 to 2018, Ms Khin's biggest problem was finding skilled workers. Most of them lacked knowledge and higher education. Another challenge was that the fabrics market in Myanmar tends to be oriented towards low prices and most of her major customers did not pay attention to product quality. Therefore, she had to spend a considerable amount of time educating her customers to focus on quality products. Moreover, she tried very hard to provide some training for her customers to encourage them to agree to sell her quality products rather than poor ones.

Human Resource Development in the Factory

As Ms Khin has not only some experience in textiles but also work experience from Singapore, she provides her workers effectively with many different training courses, such as product and machine training and management and marketing training. All the training is on-the-job training. She always trains two kinds of workers: generalised workers and specialised workers. She defines "generalised workers" as persons who are trained to carry out many different jobs within the factory, replacing the "specialised workers", who might resign or take holidays. "Specialised workers" are the persons who are experts in their typical jobs. When new workers arrive, she always gives them daily training herself for 1 month and later asks her senior workers to train them another 2 months in minor jobs. In total, the factory trains new staff or workers for 3 months. Moreover, Ms Khin trains all staff for 2 hours daily related to colour mixtures on fabric, because this is very important in this type of business. Additionally, she always uses the "knowledge management" techniques that she learnt from the MJC to accumulate knowledge effectively and efficiently from her new workers who have transferred from her competitors' factories as well as her present staff by asking questions concerned with problems, problem-solving skills, and other experiences.

Ms Khin claims that higher education is very important to understand academic contexts and that she could easily take the MJC's courses because she has a bachelor's degree. Then she can provide her staff with good training. Because of the serious training of her workers, they have all become skilful labourers. However, she still worries about their academic achievements, because none of her workers have finished university. Moreover, her business vision is that "YMF always makes the best continuous progression to achieve a silk and textile factory that produces very high-quality products and obtains competitive advantages in international

²⁰ The London Chamber of Commerce and Industry (LCCI), which offers international qualifications from the United Kingdom, is one of the world's top international examination bodies for business qualifications.

²¹ LCCI Level 2 qualifications provide good knowledge and a solid understanding of a subject or business-related job area. They help individuals to use learning to complete clearly set tasks and solve straightforward problems with some guidance or supervision. Level 2 qualifications are usually the recommended minimum entry requirements for jobs.

markets”. For this reason, she believes that higher education plays a very important role in internationalising her business.

SWOT Analysis of the Business

<u>Strengths</u> • Good knowledge of sales, marketing, business, fashion, and textiles • Good sales representatives • Good creative skills • Working closely with strong social networking, such as MABA, MRCCI, and so on • Knowing and being enthusiastic about the products being sold • Good relationship with dressmakers	<u>Weaknesses</u> • Insufficient budget for buying advanced technological fabric machines
<u>Threats</u> • Problems competing in the international and ASEAN textile markets	<u>Opportunities</u> • Highly technical textiles offer the opportunity to the Myanmar textile industry to maintain the present current growth and flourish in the near future • The number of people wearing traditional dress in Myanmar is increasing dramatically at the moment

Strategy

The strategy is to follow trends, as they are cyclical, largely because users or customers tire of one look and want a change after some time has passed. Through intuitive ability and research, the company must commit to the coming trends well ahead of the time when the clothes appear in stores.

Case 2: Potential Purified Drinking Water Factory

Business Overview

Potential Purified Drinking Water provides the best service for distributing a top-quality mineral water brand that offers standard packed water in bottles of 250 ml, 500 ml, and 1 l. It is located in Sagaing city, and its water source is in Nada Win Quarter, which is close to the Ayarwaddy River. The water there is very tasty and enhancing. In 2011, Aung Kyain Soe founded the Potential Purified Drinking Water factory, and full production has taken place since then. Currently, Potential is providing full satisfaction to its customers and is trying to achieve a big market share not only in Sagaing division but also in Mandalay through an aggressive strategy to strengthen the business. Additionally, Mr Soe always makes sure that more customers will use his products by promoting them as germ-free, fine, and superior products.

Company name:	Potential Purified Drinking Water
Date of establishment:	2011
Investment capital until now:	300,000 USD
Number of employees:	34
Main business:	Purified drinking water

History of the Factory

Mr Soe set up the Potential Purified Drinking Water factory in 2011 with only 3 members of staff, 30,000,000 kyat, and a small tricycle vehicle. Then he tried very hard to study reverse osmosis, water filtration, and purification systems. After 2 years in the business, he was able to expand it to many cities in the Sagaing and Mandalay regional divisions, such as Tada-U, Myitnaga, Myinmu, Hla Daw, and so on. Nowadays, the business is able to offer good-quality products at a relatively high cost, and the financial investment has increased to 200,000,000 kyat with 34 employees within 5 years. Today, Mr Soe has a 30% market share of the FDA approved purified water business in Sagaing with 3 trucks for deliveries.

Education Background of Mr Soe

Mr Soe graduated with a bachelor of engineering degree and specialised in mechanical engineering at Yangon Technological University, Myanmar.

Jobs Experience of Mr Soe

From 2005 to 2008, Mr Soe was a part-time lecturer at one of the colleges in Myanmar. After he left this professional job, he set up the Potential Purified Drinking Water factory.

Challenges and Difficulties in Running the Business

From 2011 to 2013, it was very hard to sell purified water in the market, because people did not know about this brand. Around this period, he could not find experienced workers to work in his factory. Many workers were very hard to train because they did not want to learn. However, Mr Soe did not give up improving his business, and he asked his wife to resign from her teaching job at a university. He also asked his son, who had just graduated from university, to help him in the factory. After 2013, Potential Purified Drinking Water became the no. 2 leading factory with 35 employees in the Sagaing regional division, Myanmar.

Human Resource Development in the Factory

All the training in the factory is on-the-job training. All the workers are trained by the owners themselves. When they are capable of working in the factory, they are no longer trained. As the owner has an engineering background, he is able to train his technicians well to undertake machine maintenance jobs every month in his factory. As he understands that higher education is very important for improving productivity in his factory, he sent his eldest son to study for an M.B.A. After his son graduated, he built a new factory for him to produce plastic caps for purified water bottles. His son also thinks that he can run his new factory very well because he has an M.B.A. combined with work experience. He reports that now he can manage to increase productivity symmetrically.

SWOT Analysis

<u>Strengths</u> • Having very good service for distribution and availability at retailers, grocers, restaurants, and hotels • Having a good taste and the finest water sources • Having very attractive bottle packaging • Always sponsors major sporting events • Increasing skills and knowledge and always sharing them	<u>Weaknesses</u> • Needs a larger budget to buy the latest high-tech purified drinking water machines • Needs money to build a modernised factory
<u>Threats</u> • Increasing water company competitors • People do not spend money on purified drinking water	<u>Opportunities</u> • High growth in the near future because increasing numbers of industries need higher quality of purified water

Strategy

The marketing strategy is to increase the service, stimulate the sharing of skills and knowledge, and invest in the latest high-tech machinery to build the brand image.

Case 3: Venus Theingi Foundry

Business Overview

Venus Theingi Foundry, a private enterprise, was founded in November 2008. It is located in Mandalay Industrial Zone 1. The main products are wear-resistant casting steel balls, cylpebs, and highly managed ball mill liners, jaw crushers, and hammer crushers. The factory has strictly followed the principles of “quality, reputation, and customers first” and is looking forward to more cooperation with its customers.

Company name:	Venus Theingi Foundry
Date of establishment:	2004
Investment capital until now:	3 million USD
Number of employees:	300
Main business:	Wear-resistant casting steel balls Cylpebs Highly managed ball mill liners Jaw crushers Hammer crushers

History of the Factory

Today, Venus Theingi (VT) is a successful high-abrasive material factory in Mandalay, Myanmar. After almost a decade of operation, VT has learned what it takes to succeed: quality, reputation, smart strategy, and technology to fulfil the customers' needs.

When VT was founded 8 years ago by Thaung Htay, it was just a small factory with around 250,000 USD initial investment and a few workers and staff. The factory produced low chrome casting steel balls, mainly for a gold mining company, at that time. The business grew to be the best between 2011 and 2012 by starting to supply its products to the National Prosperity Gold Production Group Ltd (a mining company operating the largest gold mine situated in Central Myanmar), Shwe Taung Cement Co. Ltd, and so on.

At the present time (2016), VT's investment has increased to 1.8 million USD through the use of technologically updated machines, such the Auto-Line Oil Quenching Machine, and advanced spectrometers to produce high chrome casting balls in the factory effectively. As the demand is dramatically improving, VT assigns 40 employees alternately to working for 24 hours based on their responsibilities.

Education Background

Mr Htay recently asked his two sons to run the factory, as he is too old to manage the business. Although Mr Htay did not obtain an academic degree, his two sons have received university degrees. His first son has a bachelor of physics degree and his second son has a bachelor of medicine degree.

Mr Htay's second son, Lin Phyo Aung, plays a key role in the factory. He has taken an online entrepreneurial course and a course in Operation Business Management at the Strategy First Business Centre in Mandalay.

Job Experience of Mr Aung

Mr Aung has been involved in the family business since 2011.

Challenges and Difficulties in Running the Business

Most of the challenges in the factory concern the high-technology machines, which are launched every year, so it is very hard for the business to buy new machines again and gain. The owner does not have new space to install new machines, because all the land contains the factories. He also wants to study higher education related to the foundry industry. Unfortunately, there are no such opportunities in Myanmar. Additionally, he does not have any problems with human resource development in his plant.

Human Resource Development in the Factory

Mr Aung has given scholarships to 3 smart workers to study technology majors at a technological university for 3 years. When new workers start to work in the factory, he and his senior staff train them for 3 months. Some major staff members are trained every day in relation to laboratory experiments, electricity and gas, and so on. He reports that all his qualified staff working in his accounting and engineering departments are university graduates. Therefore, he strongly believes that higher education is a very important foundation enabling employees to cope easily with new knowledge and skills regarding high technology.

SWOT Analysis

<u>Strengths</u>	<u>Weaknesses</u>
• Producing high chrome casting balls (no competitors can produce these at the moment) • Using a spectrometer • Using the Auto-Line Oil Quenching Machine	• The building is too small to increase the number of machines • Insufficient budget to increase the number of more advanced technological machines • Needs a strong management team

Strategy

The strategy is to keep investing more and more in advanced technological machines and systems to increase the high-quality productivity.

Case 4: Sein Chel International Trading Co., Ltd (Biscuit and Cookie Factory)

Business Overview

The Sein Chel International Trading Co., Ltd has been involved in the food industry (biscuits and cookies) for several years. It opened its first factory in Mandalay Industry Zone 2 in 1993 and its second in 2000. Although there are many quality items in the factory, it continually creates new special products. After years of success with its flavoured biscuits and cookies, Aung Toe, who is the founder of Sein Chel, decided to pursue new markets with the latest machines for developing several recipes. He believes that biscuits continue to be a popular consumable bakery product and are nutritious, easy to digest, and easy to deliver because of their light weight.

Company name:	Sein Chel International Trading Co., Ltd
Investment capital until now:	4 million USD
Number of employees:	500
Main business:	Development, production, and distribution of Super Win Biscuit Nan San Biscuit

History of the Factory

Mr Toe started a biscuit factory in 1992–1993 with an investment of 45,000,000 kyats. In mid-1993, he did not expect the business to perform well despite the large investment, and he could not make any profit at the beginning. His biscuit factory ceased production completely in 1996. Then he changed to another courier for buying and selling to save money and attended many business courses to enlarge his business knowledge, taking subjects such as marketing strategies, business management, and human resource management. After he had enough investment and knowledge, he restarted his biscuit factory, as he believed that it was the only job about which he was passionate. Now, his main business is the biscuit and cookie factory, but he has other businesses as well: Sein Chel Construction and Sein Chel store. He currently has 2 factories and 500 staff working for him, and his investment capital is around 4 million USD.

Education Background of Mr Toe and his staff

Mr Toe holds a bachelor's degree in botany and completed an Min-MBA in 2015. His daughter, who is helping him in the factory, has a bachelor's degree in English.

Jobs Experience of Mr Toe

Mr Toe has many years' work experience in biscuit factories from 1992 to the present. In total, he has 26 years' work experience in this field. There are 30 key staff members who have a bachelor's degree in his factory. They are managers, cashiers, sales and marketing persons, heads of financial sections, and so on.

Challenges and Difficulties in Running the Business

Even though his business is quite successful in the domestic market, Mr Toe still cannot access the international market. Moreover, the profit margins of this type of biscuit business are becoming lower and lower. However, he does not have any problems with new high-tech machines in his factories, because many skilful foreign technicians come to stay in the factories and assist and train all the staff in technical matters for one year whenever they install new machines in the factory.

Human Resource Development in the Factory

Mr Toe asks some business trainers to provide occasional on-the-job training, such as sales and marketing, customer relationships, and so on. He also enables his main staff members to attend food training given by ministries, such as the Ministry of Commerce. He totally agrees that higher education is very important in his factories' development, because it can provide him with important skills, such as problem-solving skills and analytical and critical thinking for his factories' productivity.

SWOT Analysis

<u>Strengths</u> • Create good friendships first and then business activities follow • Be active, work hard, concentrate, be kind, and read many books • Respond quickly, be honest, and be responsible • Be confident and knowledgeable • Provide people with opportunities for: achievement, responsibility, recognition, interesting and meaningful work, growth, and advancement • Always keep knowledgeable, technically skilled, experienced, and capable people	<u>Weaknesses</u> • Needs a larger budget to buy more advanced food technological machines • Needs more investment to build the latest factory
<u>Threats</u> • Several local players, a few large players, and some international players	<u>Opportunities</u> • The fastest-growing market for biscuits in Asia

Strategy

The motto is “An active team that really understand our markets with attracting packaging and very good customer relationships and our skills and experiences of using and upgrading highly technological machines for producing the best high-quality products forever”.

Case 5: Lucky Drinking Water

Business Overview

The Lucky Drinking Water Co., Ltd is one of Myanmar’s most famous and prestigious bottled water companies, and it serves all business sectors, government offices, and Myanmar citizens. It has received many world recognised certificates, such as ISO 9001, UNGC, HACCP, GMP, and US Army. It was established in 1991 by Ms Stella. The water emerges at an underground aquifer beneath the twentieth-century Lucky Estate. It provides the best service in distributing a top-quality mineral water brand, which offers standard packaged water in bottles of 20 litres, 10 litres, 6 litres, 1 litre, 0.5 litres, and 0.32 litres. It is located in Block 489, Tampawadi, Chanmya Tarzi, Mandalay, and its water source is in the Tampawadi area, which is one of the best water resources in the Mandalay region. Ms Stella is always thinking of effective and efficient ways to develop her business by providing her factory with new high-tech purified water machines to satisfy more customers and rigorously improve the health of the Myanmar society.

Company name:	Lucky Drinking Water Co., Ltd
Date of establishment	1991
Investment capital until now	3,500,000 USD
Number of employees	200
Cash flow	1,000,000 USD
Main products	Purified drinking water

History of the Factory

The Lucky Drinking Water Co., Ltd was established in 1991 by Ms Stella with 20 employees and a little investment. During that period, it was very hard to sell purified water in the market (the company only sold a 20 litre bottle per day), because people did not have much knowledge about the benefits of drinking purified water. Around that period, there was no drinking water for the public in the market, so Lucky Drinking Water can be said to be the pioneer of drinking water in Myanmar. Later, Ms Stella was the first user of R.O. in Myanmar in 1996. The R.O. membrane is a 0.0001-micron filter, and it can remove 100% of bacteria and viruses and 99.99% of physical and chemical particles. The business was booming in 2010 and 2011. Now, Lucky Drinking Water Co., Ltd is the no. 3 leading factory with 200 employees in Myanmar after the Alpine and Max2O drinking water companies.

Education Background of Ms Stella and Her Staff

Ms Stella holds a bachelor’s degree in mathematics, and her daughter, who helps her, has a bachelor’s degree in business from the US. Her reliable general manager, Mr Myo Than, has a master’s degree in geography.

Jobs Experience of Ms Stella

Ms Stella has many years' work experience in biscuit factories from 1991 to the present. In total, she has 27 years' work experience in this field.

Challenges and Difficulties in Running the Business

The numbers of competitors are increasing, and the majority of workers have a mindset that is still out of date and they do not want to follow all the changes. In 2019, the minimum wage in Myanmar increased by 30%. The company uses drinking water machines from Taiwan and Thailand; because the machines are not very big, the company does not need large spaces to install those machines in the factory. Although it would prefer to buy very good-quality machines from Japan, the machines are too big compared with the machines from Taiwan and Thailand.

Human Resource Development in Factory

Ms Stella asks well-known business trainers to provide occasional on-the-job corporate training.²² The company offers two kinds of training for its staff: in-house training and external training. The General Manager, Myo Than, is sent to take outside courses, such as the MJC's business short courses and ministries' training, around 5 times per year. For the other staff, every year the company must provide a yearly training plan. The plan states that each department must select capable workers to attend related training; for example, the IR department head must provide 10 or more staff members to take IR training. Mr Than certainly believes that the role of higher education plays very important roles in all the factories, because only higher education can provide the background or foundation of thinking concepts to improve further the skills in the industry effectively and efficiently.

SWOT Analysis

<u>Strengths</u> • Located in the best area for water resources • Many international certificates • Special interest to foreign factories • Very high customer satisfaction • Very good delivery systems	<u>Weaknesses</u> • Needs a larger budget for buying the latest high-tech purified drinking water machines • Needs money to build a modernised factory
<u>Threats</u> • Increasing water company competitors • Lack of skilled labourers	<u>Opportunities</u> • High growth in the near future, because increasing numbers of industries need higher quality of purified water

Strategy

The marketing strategy is always to produce light and clean water, with a delicate pH balance for a premier taste.

²² Corporate training is a process of development for corporate activities provided to educate employees. It can be carried out through formal college training or informal training provided by various institutions.

Case 6: Nyunt Nyunt Preserved Fruits Factory

Business Overview

The Nyunt Nyunt Preserved Fruits business was founded in May 2003 with a few investments by Than Than Htay. It is located at No. 11, Mahan Tan Ward, Azayat, Amarapura Township, Mandalay. The main products are Myanmar high-quality preserved fruits, such as tamarinds and jujube. Now Nyunt Nyunt has decided to expand its market by creating a new brand with a new product, “tamarind–jaggery” preserved fruit. It is also enlarging its business not only by using advanced technology machines but also by building a modernised factory and systems to improve the export quality.

Company name	Nyunt Nyunt Mandalay Pte. Ltd
Date of establishment	2003
Investment capital until now	2.5 million USD
Number of employees	130
Main business	The main products are Myanmar high-quality preserved fruits: • tamarinds • jujube • tamarind–jaggery

History of the Factory

Nyunt Nyunt is an existing preserved fruits business, and it is located in Mandalay. It was founded by Ms Htay in 2003. She is working very hard to become one of the leading preserved fruit products traders in Mandalay. The business started as a very small business with only two members of staff in 2003. Since that time, Nyunt Nyunt has identified three key factors that will be instrumental in its success. The first is the philosophy of well controlled finances. The second key factor is never to give up. The third is to provide 100% customer satisfaction. Now Nyunt Nyunt is running quite well with an effective management team and has enlarged its brand.

Education Background of Ms Htay and Her Daughter

Ms Htay did not finish her 4-year bachelor of arts degree in geography. She stopped in her second year of studying at university. However, her daughter, Ms Hnin Su Mon, who helps her in the factory, holds a bachelor’s degree in business management.

Jobs Experience of Ms Htay

Ms Htay has over 19 years of work experience in this field. Now her daughter has been helping her for almost 3 years in the same field.

Challenges and Difficulties in Running the Business

The business is experiencing demand and supply problems. Although some of its products are famous, it cannot fulfil all the demands of the customers. It has enlarged the factory, but the demand is continuing to increase over time.

Human Resource Development in the Factory

Ms Htay sent her 4 staff members to complete their higher education. Among the 130 workers in the factory, 10 hold bachelor's degrees. She frequently hires famous trainers to conduct in-house training, such as personal coaching and motivation courses, and she sends some staff to take short marketing courses and PLC²³ training externally every 6 months. At the moment, the factory has a 1-year training plan, but it cannot initiate the plan yet. Ms Htay's daughter, Ms Mon, believes that higher education is very important for working in the factory, because it can provide a work balance. Moreover, she can help her mother to improve their business in a short time because she specialised in logistics and can distribute her products around the country very effectively. This is why she thinks that the right higher education degree for the right business can improve productivity.

SWOT Analysis

<u>Strengths</u> • Having very good service for distribution and availability at wholesalers, retailers, and grocers • Having a good taste and the finest fruit sources • 100% customer satisfaction • Always sponsors major sporting events	<u>Weaknesses</u> • Needs new technology equipment as long-term assets to improve the quality of products • Needs money to build a modernised factory
<u>Threats</u> • Has a strong customer base through aggressive marketing	<u>Opportunities</u> • The international market will focus on good preserved fruits • High growth in the near future because increasing numbers of industries need higher quality of preserved fruits

Strategy

The marketing strategy is to raise awareness and visibility of the high-quality brand. The sales strategy, in addition to reinforcing the competitive edge, is to seek qualified leads by concentrating on Nyunt Nyunt's ability to perform reliably in long-term contracts, becoming a stable supplier to larger companies that need a steady supply stream. It also aims to increase its

²³ A programmable logic controller (PLC) or programmable controller is an industrial digital computer that has been ruggedised and adapted for the control of manufacturing processes, such as assembly lines, robotic devices, or any activity that requires high reliability control and ease of programming and process fault diagnosis.

service, stimulate the sharing of skills and knowledge, and invest in the latest high-tech machine to build its brand image for the international market.

Case 7: Points Trading (Foam Food Container Factory)

Business Overview

Points Trading was established as a high-quality foam food container factory in Mandalay in 1996 by Tan Win. Its parent company is called Kaung Hein San Co., Ltd. His showroom is located in Chan Aye Thar Zan Township, Mandalay. The containers are disposable ones for various foods and beverages, and many customers across Mandalay, Yangon, and other regions and states use the service because they trust the innovative designs and the good-quality materials of the products. The revenues of the business are expected to be nearly \$30,000 per month depending on the variables that are factored into traditional ceremonies each month. According to the market experts, these types of business in Myanmar will grow to meet the huge demand over the next 10 years. For that reason, Mr Win is working very hard to expand his business without delay.

Name of the company	Points Trading
Date of establishment	2000
Investment capital until now	3 million USD
Number of employees	100
Main products:	1. Foam lunch boxes (small, medium, and large sizes) - Small size (hamburger) - Medium size (lunch Box) - Large size (food container) 2. Foam plates (small, medium, large)

History of the Factory

Points Trading's foam food container factory was founded in 2000. Point employs more than 100 people around the country. In the fiscal year 2017, it reported sales of 3.5 billion kyat. Point understands the needs of the customers whom it serves with innovative and the best-quality products. Therefore, the products of Point are of a high standard. Another milestone in the company's continuous success is having knowledge of new product development. It is true that, within a short span of time, Point has rapidly turned into a successful player in the production sector.

Education Background of Mr Win

Mr Win has a bachelor of science degree in chemistry. None of his family members have been involved in his business until now.

Jobs Experience of Mr Win

Mr Win started his foam food container business in 1993 with a small amount of money. At that time, he bought some foam lunch boxes from China and then tried to sell them in Mandalay city. At the beginning, no shops were interested in using foam boxes, because they were all still using tree leaves and newspaper to wrap up food, so he had to be patient and wait for opportunities. Fortunately, the right time appeared a few years later and many people realised that foam food boxes were more convenient. Since that time, he has operated a good business and earned a good income, and he established the foam food container factory in 2000 with his family and 2 workers. His business has been growing dramatically since 2000, and now he owns 2 factories and many warehouses around Mandalay. In total, he has more than 28 years of work experience in this field.

Challenges and Difficulties in Running the Business

In Mr Win's factory, the labour turnover rate is very high, because nowadays many Chinese factories are being established in Myanmar and the workers find information about better-paid jobs (between \$30 and \$40 higher in monthly salary) from Facebook on the Internet, so they are likely to change jobs.

Human Resource Development in the Factory

In Mr Win's foam factory, there are three bachelor's degree graduates. As the factory production line is quite simple (matching colours of foam and cutting and folding) and all the machines are very simple, he thinks he does not need to train his workers and they can learn from senior staff members in a couple of days. He has never organised any in-house or external training in his factory. He also thinks that higher education is not very important for him to run this type of business, but he says that maybe it is important for the next generation and he wants all his children to receive very good higher education degrees in the future for his factory.

SWOT Analysis

<u>Strengths</u> • Focused on gaining new customers, retaining the existing customers, and encouraging customers to spend more and return more often	<u>Weaknesses</u> • Needs a larger budget to buy high-quality machines • Needs to build more factories
<u>Threats</u> • International players and markets	<u>Opportunities</u> • High growth market in Myanmar, as many food chains are being established in Myanmar (e.g. KFC)

Strategy

To speed up the customer service, the company will build up its customer-oriented culture by using banners and fliers utilising customer referrals and promotions. At the same time, customer retention programmes are used to make sure that the customers come back and spend more in the company's shops.

Case 8: Mann Standard Machinery Co., Ltd (Automated Driveway Gates and Manufacturing Conveyers)

Business Overview

Mann Standard Machinery Co., Ltd produces automated driveway gates, importing some machinery parts, and manufacturing conveyers. It was founded on Wednesday 28 June 2006 by Nay Win, who is the inventor of the automated gates and conveyers in Mandalay. In total, more than 20 machines have been invented since that time.

Now Mann Standard Machinery Co., Ltd has decided to upgrade and update the production to be more acceptable in a modern society. Mr Win plans not only to buy advanced technology machines but also to build a modernised factory to create better-quality products to enable his business to grow within 5 years.

Company name	Mann Standard Machinery Co., Ltd
Managing director	Mr Nay Win
Date of establishment	Wednesday 28 June 2006
Investment capital until now	3 million USD
Number of employees:	72
Main business:	The main products are • automated driveway gates • manufacturing conveyers • importing some machinery parts

History of the Factory

Mann Standard Machinery Co., Ltd was founded on Wednesday 28 June 2006 by Mr Nay Win. In 1958, his father started a company and was the inventor of automated gates in Mandalay. In 1990, Mr Win took over this business as the second generation. Then he and his 20 workers started to invent some machines for producing traditional Myanmar medicines, food processing, household appliances, and graters for different purposes. In 2006, he registered his company under the name of Mann Standard Machinery Co., Ltd. Since 2006, he has been successfully producing automated driveway gates and importing some machinery parts. Now his company is running very well and has a 70% market share of automated driveway gates with 72 employees in Mandalay.

Education Background of Mr Win and His Son

Mr Win could not finish his bachelor's degree in electronic engineering. He stopped studying when he was in the fourth year because he had to take over the family factory. Two years ago, he attended some operation management and 5S and Kaizen short courses run by the MJC. However, his son, Win Min That, has two degrees: a bachelor of science in geology and an M.B.A. in management.

Job Experience of Mr Win

Mr Win has many years of work experience in this type of factory from 1990 to the present. In total, he has more 27 years' work experience in this field.

Challenges and Difficulties in Running the Business

Many workers are unskilled and have poor mindsets or thinking.²⁴ The biggest problem for the factory is unstable workers.

Human Resource Development in the Factory

The company conducts two types of training for its staff: in-house training and external training. The company invites outside trainers to train staff on their motivation and management skills as in-house training. Sometimes the company sends manager-level employees to receive some production training offering by the government and NGO associations.

To retain good staff members, the company supports them financially to enable their children to continue their education at schools and universities, but it never asks those children to work in the factory.

All the training based on the factory's weaknesses is arranged by the owner himself. Moreover, he always provides some training concerned with sales and marketing himself in his weekly meeting. When he hires a new member of staff or worker, he prefers a person who has finished vocational school to one with higher education, because a person from vocational school always brings the right skills and knowledge and is quick to train in his factory. However, workers with regular arts and science higher education do not bring any skills and knowledge to the factory, and he just asks them to stay in the office to be office staff. He wants workers in the factory who have vocational education rather than higher education.

SWOT Analysis

Strengths • Mr Win has 30 years' work experience of knowledge; he is a good leader of this business • Having qualified full-time managers • Having its own space	Weaknesses • No consultants who can conduct market research and customer satisfaction surveys and provide additional input into the evaluation of new business opportunities
Threats • Shortage of skilled labourers	Opportunities • The market will focus more on automated machines

Marketing strategy

The marketing strategy has the objective of raising awareness and visibility of the company's branding with high quality. The sales strategy, in addition to reinforcing the competitive edge, seeks to qualify leads by concentrating on the Mann Standard Machinery Company's ability to perform reliably in long-term contracts, becoming a stable supplier to larger companies that need a steady supply stream.

²⁴ Poor mindsets: always looking for better-paid jobs, always thinking that the company is taking advantage of them, and never wanting to improve and learn new concepts.

Case 9: KHH (Myanmar Traditional Fabric and Garment-Weaving Factory)

Business Overview

KHH, a Myanmar traditional fabric and garment-weaving factory, was founded in January by Myint Swe 1999 with few workers and investments. In 2001, it moved to Meiktila Industrial Zone, and it is located between the third and the fourth street in Meiktila City. The main products are Myanmar traditional male and female wear (Myanmar traditional clothes: “longyis” and “eingyis”). In 2001, KHH owned only 3 weaving machines, but now it runs the factory with 90 weaving machines and 50 workers (office workers, weavers, dyeing specialists, and so on). KHH has decided to expand its business to have more updated machinery oriented towards Myanmar traditional clothes and to supply them throughout Myanmar. It will achieve these aims not only by buying advanced technology machines but also by building a modernised factory and systems to improve the export quality and enlarge its business growth within 5 years. The following pictures show Myanmar traditional gentlemen’s wear (left) and Myanmar traditional ladies’ clothes with colourful embroidery designs (right).

Company name	KHH
Date of establishment	January 1999
Investment capital until now	700,000 USD
Number of employees	50
Main business	The main products are • Myanmar traditional fabrics for males • Myanmar traditional fabrics for females

History of the Factory

Mr Swe started a very small business with only 2 members of staff and 2 rented wooden weaving machines on the outskirts of Meiktila in 1999. Because of the shortage of electricity there, he moved his small factory with 3 newly bought weaving machines to Meiktila Industrial Zone in 2001, where he could access electricity 24 hours a day. Through hard work, he owned 10 machines in 2005, 20 machines in 2012, 40 machines in 2014, and 90 machines in 2015. In 2016, he was able to donate 50,000,000 kyats to monks and buy the latest car for 30,000,000 kyats. Now he distributes his products around the country, mainly to Yangon, Mandalay, Myingyan, Mawlamyine, Pakokku, Mudon, and Thanbyuzayat. Since that time, Mr Swe has identified three key factors that will be instrumental in the company’s success. The first is the philosophy of well controlled finances. The second is never to give up. The third is to ensure 100% customer satisfaction.

Education Background of Mr Swe

Mr Swe just finished high school and did not go to university. He has never attended any business training courses.

Jobs Experience of Mr Swe

Mr Swe has almost 30 years’ work experience in this field.

Challenges and Difficulties in Running the Business

There is insufficient money to buy the latest machines for the factory.

Human Resource Development in the Factory

None of the staff have higher education, and no training has been carried out in the factory. Mr Swe thinks his business is a traditional one, so neither he nor his staff need to have a higher education degree. However, he believes that higher education can increase creativity and imagination when creating new product designs and, when taking foreign study trips, he would not need to rely on translators but could ask detailed questions about foreign factories himself and share some product knowledge.

SWOT Analysis

<u>Strengths</u> • The philosophy of well-controlled finances • 100% customer satisfaction • Mr Swe's wealth of knowledge; he is the leader of the sales team	<u>Weaknesses</u> • No new equipment as long-term assets to improve quality products
<u>Threats</u> • Problems competing in the international and ASEAN textile markets	<u>Opportunities</u> • Highly technical textiles offer the opportunity to the Myanmar textile industry to maintain the present current growth and flourish in the near future • The number of Myanmar people wearing traditional dress is increasing dramatically at the moment

Strategy

The marketing strategy has the objective of raising awareness and visibility of the high-quality brand. The sales strategy, in addition to reinforcing the competitive edge, will seek to qualify the leads by concentrating on KHH's ability to perform reliably in long-term contracts, becoming a stable supplier to the larger companies that need a steady supply stream.

Case 10: Shwe Min Thar Soap Factory

Business Overview

Since 1986, the family's goal has been to create quality soap bars for the households in Myanmar. Founded by the Chairman, Khin Maung Than, with the aid of 6 comrades, Shwe Min Thar Soap has become essential for households, especially in rural areas. Across Myanmar, more than 16 million soap bars are used by households annually. The business is located at No. 491, 84th Street, Tan Pa Waddy, Yadanarpon Quarter, Chan Mya Thar Si Township, Mandalay.

Now, the leadership has been assumed by Managing Director Phyto Wai Aung and Director Thet Htar Aye and the organisation has maintained its momentum. In addition, they expanded the company by opening another factory in the industrial zone in 2016. They reformed the

management system and put tremendous effort into make sure that Shwe Min Thar Soap has the best quality. They are also conducting intensive research on more products to add to the product line.

Name of the company	Shwe Min Thar Soap
Date of establishment	1996
Investment capital until now	2.1 million USD
Number of employees	60
Main products	Soap bars

History of the Factory

Mr Than started his soap bar business in 1986 with 6 employees in Mandalay. At that time, he distributed his products only around small areas. At the beginning, no shops were interested in using his products, because they all sold other brands. Fortunately, the right time emerged a few years later and many customers realised that Shwe Min Thar Soap was more convenient and better quality than other brands. Since then, Mr Than has run a good business and made a good income, establishing his second soap factory in 2015. His business has grown dramatically since 2005 with the help of his son and daughter-in-law, and now he owns 2 factories and many warehouses around Mandalay and employs over 60 members of staff. In 2018, his soap business held 40% of the market share around Myanmar, especially in 4 states and 6 divisions. The 4 states are Kachin State, Kayar State, Mon State, and Rakhine State, and the 6 divisions are Irrawaddy Division, Bago Division, Magway Division, Mandalay Division, Sagaing Division, and Yangon Division.

Education Background of Mr Aung and Ms Aye

Mr Aung has a bachelor of science degree in industrial chemistry and his wife, Ms Aye, has a bachelor degree of mechanical engineering and a global MBA from UTCC.²⁵ Moreover, Ms Aye has taken many short courses from the MJC, such as Leadership Management, Business Plan, Innovation Management, Industrial Management, and Financial Management.

Job Experience of Mr Aung and Ms Aye

Both Mr Aung and Ms Aye have almost 15 years' work experience in this field.

Challenges and Difficulties in Running the Business

Most old workers are not capable of coping with changes, and the turnover rate for junior workers is a little too high.

²⁵ The University of the Thai Chamber of Commerce is a private non-profit higher education institution in Bangkok, Thailand.

Human Resource Development in the Factory

Only 4 staff members in the 2 factories have higher education, and no training has been carried out in the factories. The method of evaluating qualified staff is based on the recommendation of 3 senior workers who have worked for the company for more than 10 years. The probation period for new staff is 3 months, and then, if their 3 senior workers recommend them as qualified workers, they can obtain an assistant supervisor position straightway. If their 3 senior workers say they are just normal workers, they cannot gain any position and just work as normal workers. Ms Aye has sent her 2 female financial office staff for computer accounting training outside the factory by paying tuition fees and monthly salaries. A staff meeting is held every week, and senior staff members have to submit reports in closed envelopes every month.

Ms Aye strongly believes that higher education can play a key role in improving thinking and learning abilities.

SWOT Analysis

<u>Strengths</u> • Focused on gaining new customers and retaining existing customers with high-quality products	<u>Weaknesses</u> Not able to fulfil customers' demands because of • the need for a larger budget for buying high-quality machines • the need to build more factories
<u>Threats</u> • International players and markets	<u>Opportunities</u> • High-growth market in Myanmar

Strategy

The ultimate strategy is to build Shwe Min Thar Soap products into the standard for customers' washing safety and cleanliness. The tactics are to increase the number of new customers in the rest of the states and divisions through the use of the products, including continual and progressive expansion into new markets with high-quality products.

7.1.1 Methodology

Research Design

A qualitative research design is used in this study. In-depth individual interviews were conducted with the key persons of ten factories in Mandalay, Myanmar, by visiting the plants. This section also provides three models of the relationships between higher education and manufacturing industrial development based on the ten cases. The ten cases are categorised into three groups – 1) traditional; 2) semi-traditional; and 3) non-traditional – in three different models as follows.

Traditional cases	Case 7: Points Trading (foam food container factory) Case 9: KHH (Myanmar traditional fabric-weaving factory)
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Semi-traditional cases	Case 2: Potential Purified Drinking Water Factory Case 6: Nyunt Nyunt Preserved Fruits Factory Case 8: Mann Standard Machinery Co., Ltd Case 10: Shwe Min Thar Soaps Factory
Non-traditional cases	Case 1: Yi Mon Factory (Myanmar traditional dressmaker) Case 4: Sein Chel International Trading Co., Ltd Case 3: Venus Theingi Foundry Case 5: Lucky Drinking Water

7.2 Analysis of the Ten Cases

7.2.1 Case Model 1: Traditional

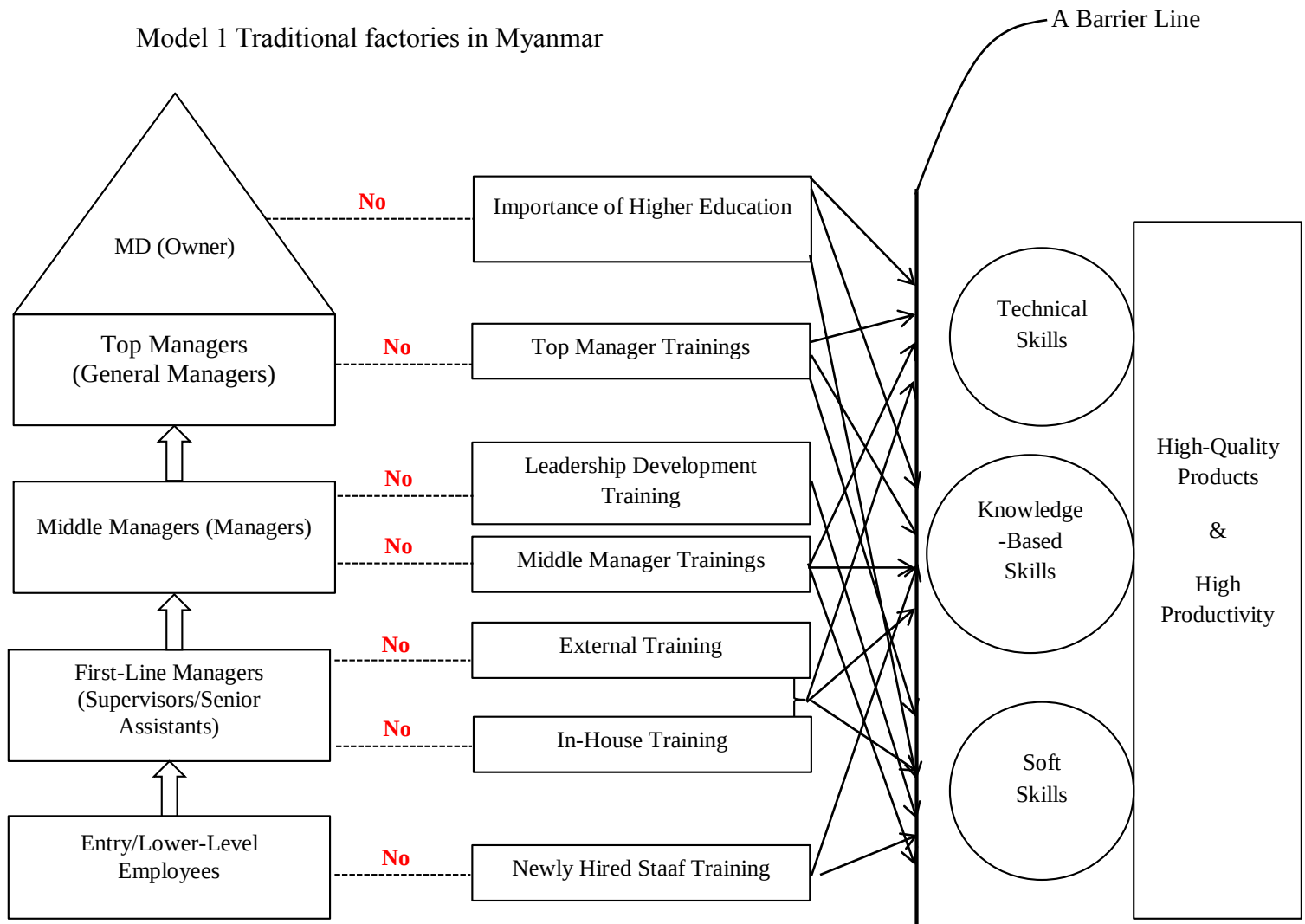
Two cases are selected to analyse as traditional factories in this section. They are Case 7: Points Trading (foam food container factory) and Case 9: KHH (Myanmar traditional fabric-weaving factory).

Case 7 states that the owner holds an academic degree, but he does not think that higher education is important for growing his factory, so he has never organised any in-house or external training in his factory. However, he says that higher education is important for the next generation and that he wants all his children to receive very good higher education degrees in the future for his factory. In his factory, the labour turnover rate is very high, because nowadays many Chinese factories are investing in Myanmar. His workers gain information on better-paid jobs (between \$30 and \$40 higher on a monthly salary basis) in those Chinese-owned factories from Facebook (on the Internet). Many of his workers have resigned from his factory and moved to Chinese ones. In Mr Tan Win's foam factory, there are three graduates with a bachelor's degree. As his factory production line is quite simple (matching colours of foam and cutting and folding) and all the machines are very simple, he thinks that he does not need to train his workers and that they can learn from their seniors in a couple of days.

Case 9 describes the owner as having completed high school; he did not go to university. He has never attended any business training at all. None of his staff have higher education, and he has never undertaken any type of training in his factory. He thinks his business is a traditional one, so neither he nor his staff need to have a higher education degree. However, he believes that higher education can increase creativity and imagination when new product designs are required and that, when travelling abroad, he would not need to rely on translators all the time and would be able to ask some detail questions at foreign factories by himself and share some product knowledge.

The owners in both above cases do not think that higher education is important for their manufacturing company, so they have never provided any kind of training to all levels of their employees. When they are employing new staff or workers, they just ask a few general questions related to their family background, previous workplaces, and so on. Based on these two selected cases, the following figure shows the first model of the relationship between highly educated and skilled human resources and manufacturing industrial development.

Model 1 Traditional factories in Myanmar



Source: Drafted by the author.

According to Model 1, there is no relationship between higher education and manufacturing industrial development. The issues are that the owners of traditional factories in Myanmar think that higher education is not important for their factories and they have never provided any academic and non-academic training to any of their employees. Therefore, it is very hard for this type of factory to pick up technical, knowledge-based, and soft skills and impossible for the plants to achieve high-quality products and high productivity levels.

7.2.2 Case Model 2: Semi-Traditional

Four cases are chosen to study as semi-traditional factories in this section. A semi-traditional factory has two groups of employees. The first group of employees contains old staff members who have been working in the plant for many years under the traditional management systems of the senior owners,²⁶ and the second group of workers mostly consists of new employees who are controlled by junior owners²⁷ in the same factory. The four cases are Case 2: Potential

²⁶ Senior owners might be around 60 years of age and they could be the parents, uncles, or aunts of junior owners.

²⁷ Junior owners are the new generation of the plant and they are young, active, and educated.

Purified Drinking Water Factory, Case 6: Nyunt Nyunt Preserved Fruits Factory, Case 8: Mann Standard Machinery Co., Ltd, and Case 10: Shwe Min Thar Soaps Factory.

Case 2 illustrates that the owner is a graduate with a bachelor's degree in engineering. All the training in the factory is on-the-job training. All the workers are trained by the owners themselves. When they are capable of working in the factory, they no longer train them. As the owner has an engineering background, he is able to train his technicians well to carry out machine maintenance jobs every month in his factory. As he understands that higher education is very important for improving productivity in his factory, he sent his eldest son to study for an M.B.A. After his son graduated, he built a new factory for him to produce plastic caps for purified water bottles. His son also thinks that he can run his new factory very well because he has an M.B.A. combined with some work experience. He reports that he can now manage to increase productivity in his factories symmetrically.

Case 6 shows that the owner's daughter, who is involved in the business, has a bachelor's degree in business management. The company is facing demand and supply problems. As some products are famous, the company cannot fulfil all the demands from its customers. It has enlarged the factories, but the demand is continuing to increase over time. The owner's daughter always hires famous trainers to conduct in-house training, such as personal coaching and motivation courses, and has sent some staff to take marketing short courses and PLC training externally every 6 months. At the moment, the factory has a 1-year training plan. The owner's daughter, Hnin Su Mon, believes that higher education is very important to working in factories, because it can provide a work balance. Moreover, she can help her mother to improve their business in a short time because her higher education was specialised in logistics, so she can distribute her products around the country very effectively. This is why she thinks that a higher education degree in the right subject can improve factories' productivity.

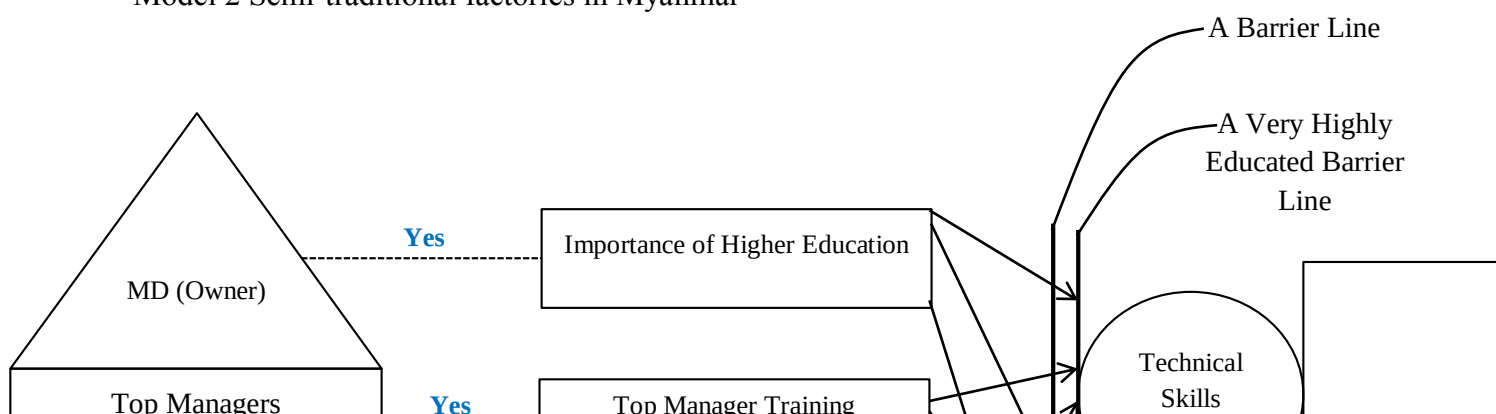
Case 8 indicates that the owner could not finish his bachelor's degree in electronic engineering but has attended some operation management and 5S and Kaizen short courses from the MJC. However, his son, who is involved in the business, has two academic degrees: a bachelor of science degree in geology and an M.B.A. in management. In the factory, many workers are unskilled and have poor mindsets or thinking. The biggest problem for the factory is unstable workers. The company performs two types of training for its staff: in-house training and external training. The company invites outside trainers to train staff on their motivation and management skills as in-house training. Sometimes the company sends manager-level employees to receive some production training offered by the government and NGO associations. The training is mostly based on the factory's weaknesses. All the training is arranged by the owner himself. Moreover, he provides some training concerned with sales and marketing at his weekly meeting. When he hires a new staff member or worker, he prefers a person who has finished vocational school to someone with higher education, because persons from vocational school always bring the right skills and knowledge and are quick to train in his factory. However, workers with arts and science higher education do not bring any skills and knowledge to the factory, so he only lets them work in the office as office staff. He always wants workers who have vocational education more than ones who have higher education in the factory.

Case 10 shows that the owner's son has a bachelor of science degree in industrial chemistry and his daughter-in-law has a bachelor of engineering degree in mechanics and a global MBA from UTCC. Moreover, his daughter-in-law has taken many short courses from the MJC, such as Leadership Management, Business Plan, Innovation Management, Industrial Management, and Financial Management. The problems for the factory are that most of its old workers are

not capable of coping with changes and that the turnover rate for junior workers is a little too high. Only 4 members of staff in the 2 factories have higher education. The company has never undertaken any type of training. The method of evaluating qualified staff is based on recommendations of 3 senior workers who have worked for the factories for more than 10 years. The probation period of new staff is 3 months; then, if their 3 senior workers recommend them as qualified workers, they can receive an assistant supervisor position straightway. If the 3 senior workers do not recommend them as qualified workers, they cannot continue their work or do not gain any positions and just work as normal workers. Recently, the company has sent their 2 female financial office staff members for computer accounting training outside the factory by paying their tuition fees and monthly salaries. It holds a staff meeting every week, and the senior staff have to send closed-envelope reports of the staff evaluations every month. The owners strongly believe that higher education can play a key role in improving thinking and learning processes.

According to the four cases, in semi-traditional factories, two generations work together and both parties agree that having highly educated and skilled human resources in their plants is important. In fact, there is a gap between old staff and newly hired staff, because the old staff members have never had academic training. Now old employees must have some training with new staff, and they are not very active or do not cope well with the academic training. Based on these four selected cases, the following is the second model of the relationship between highly educated and skilled human resources and manufacturing industrial development.

Model 2 Semi-traditional factories in Myanmar



Source: Drafted by the author.

According to Model 2, there is a connection between educated and skilled human resources and factories' development process. The problems still exist in these semi-traditional factories, because most of the employees are not highly educated and skilled human resources. In the past, they did not have many chances to receive good professional training, because Myanmar's higher education system was very weak from 1990 to 2011. However, all semi-traditional factories in Myanmar have many positive opportunities to break through the barrier line, as all factories will set up a considerable amount of academic training in the near future. To have a major breakthrough in industrial development, they still have to work a little harder to obtain very highly educated and skilled human resources. Therefore, this type of factory is close to achieving technical, knowledge-based, and soft skills with high-quality products and large productivity in the plants.

7.2.3 Case Model 3: Non-traditional

Four cases are chosen to study non-traditional factories in this section. A non-traditional factory means that only young or very educated generations are fully leading or running the factory. The four cases are Case 1: Yi Mon Factory (Myanmar Traditional Dressmaker), Case 3: Venus Theingi Foundry, Case 4: Sein Chel International Trading Co., Ltd, and Case 5: Lucky Drinking Water.

Case 1 shows that the owner graduated in with a bachelor of science degree from Mandalay University, Myanmar, and specialised in botany. When she worked in Singapore from 2006 to 2014, she received many management training certificates. After she returned from Singapore, she joined the MJC to take many business short courses, such as Knowledge Management, Business Plan, Strategic Management, Case Methods, and Financial Management. She also

obtained the Certificate of LCCI Level 2. From 2017 to 2018, her biggest problems were finding skilled workers. Most of them lacked knowledge and higher education. Another challenge was that the fabric market in Myanmar tends to be oriented towards low prices and most of her big customers did not pay attention to products' quality. Therefore, she had to spend a considerable amount of time educating her customers to focus on quality products. Moreover, she tried very hard to give some training to her customers to agree to sell more quality products than poor ones.

Recently, as she has not only some experience in textiles but also work experience in Singapore, she has been able to provide her workers effectively with many different kinds of training, such as product and machine training and management and marketing training. All the training is on-the-job training. She always trains two kinds of workers: generalised workers and specialised workers. She defines "generalised workers" as persons who are trained in many different jobs within the factory to replace specialised workers who might resign or take holidays. "Specialised workers" means persons who are experts in their typical jobs. When new workers arrive, she always trains for 1 month daily herself and later asks her senior workers to train them for another 2 months in minor jobs. In total, the factory trains new staff or workers for 3 months. Moreover, the owner trains all the staff for 2 hours daily related to colour mixtures in fabrics, because this is very important in this type of business. Additionally, she always uses the "knowledge management" techniques that she learnt from the MJC to accumulate knowledge effectively and efficiently from new workers who have transferred from her competitors' factories and her present staff by asking questions concerned with problems, problem-solving skills, and other experiences. She always claims that higher education is very important to understand academic contexts and that she can easily understand some difficult concepts from the MJC's courses because she has a higher education degree. Consequently, she can provide her staff with good training. Her serious training of her workers means that they have become skilful labourers, but she still worries about their academic achievements, because none of her workers have finished university. Moreover, her business vision is that "YMF always makes the best continuous progression to achieve a silk and textile factory that produces very high-quality products and obtains competitive advantages in international markets". For this reason, she believes that higher education plays a very important role in internationalising her business.

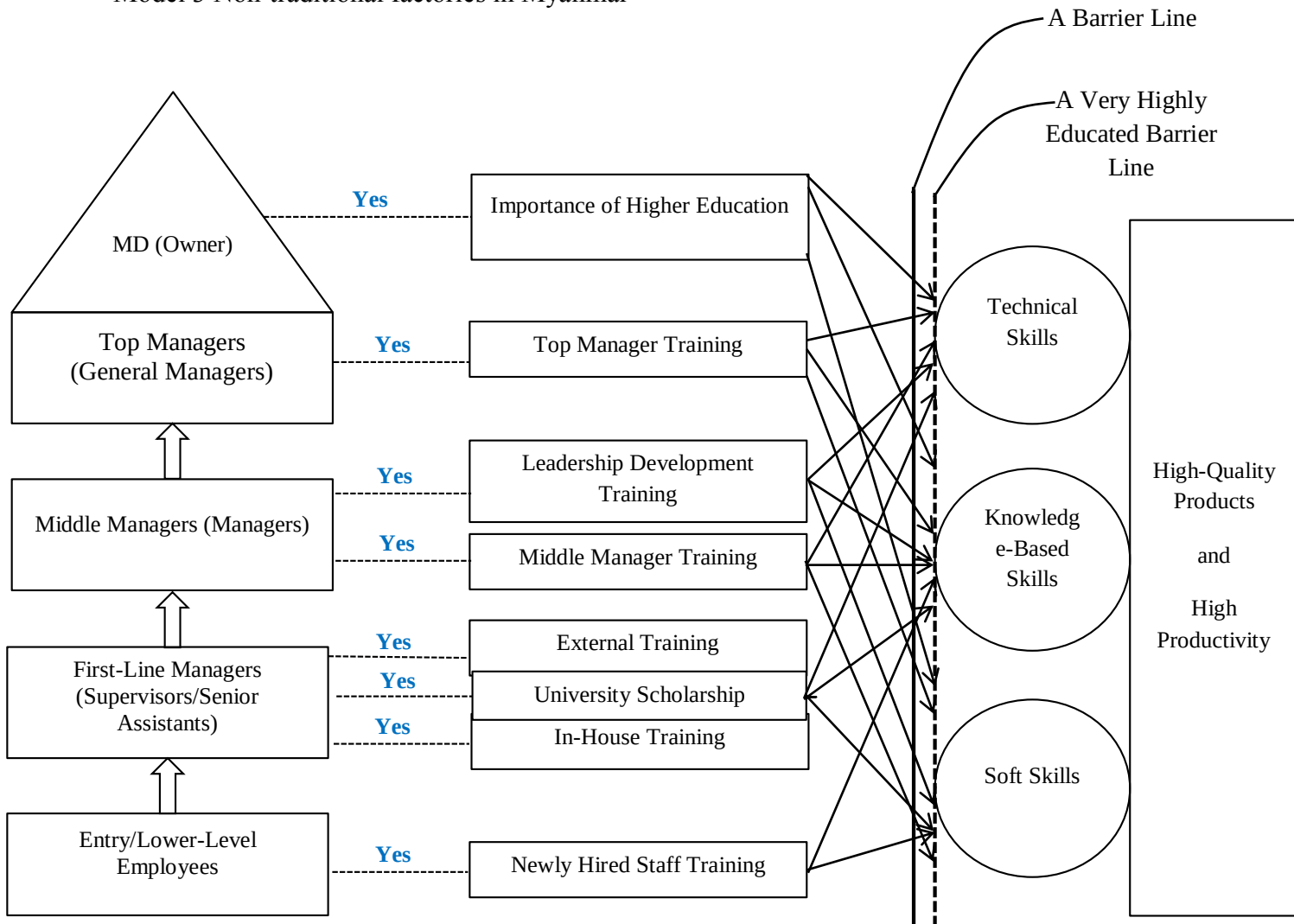
In **Case 3**, the owner has completely turned over his business to his two sons to run the factory as he is too old to manage the business. Although Mr Htay did not obtain an academic degree, his two sons have received university degrees. His first son received a bachelor of physics degree and his second son has a bachelor of medicine degree. According to his second son, the main challenge in the factory is that new versions of their high-technology machines are launched every year, so it is very hard for the company to buy new machines repeatedly. He also wants to study higher education related to the foundry. Unfortunately, there is no such course in Myanmar. Additionally, he does not have any problem with human resource development in his plant. Recently, he has given scholarships to 3 smart workers to study technology majors at one of the technological universities in Myanmar for 3 years. When new workers start to work in the factory, they and his senior staff train them intensively for 3 months. Some major staff members are trained every day in laboratory experiments, electricity and gas, and so on. He mentions that all the qualified staff members who work in his accounting and engineering departments have graduated from university. Therefore, he strongly believes that higher education is a very important foundation to cope easily with the new knowledge and skills gained from learning about higher technologies.

Case 4 reports that the owner holds a bachelor's degree in botany and undertook a Min-MBA in 2015. His daughter, who helps him in the factory, has a bachelor's degree in English. Even though his business is quite successful in the domestic market, he cannot enter the international market yet. Moreover, the profit margins of this type of biscuit business are becoming lower and lower at the moment. However, he does not have any problems having new high-tech machines in his factories, because many skilled foreign technicians come to the factories and assist and train them all in technical matters for a year whenever new machines are installed in the factory. He asks some business trainers to give occasional on-the-job training, such as sales and marketing, customer relationships, and so on. He also enables his main staff to attend some food training given by the Ministry of Commerce. He totally agrees that higher education is very important in his factory's development, because it can provide him with some important skills, such as problem-solving skills and analytical and critical thinking regarding productivity.

Case 5 indicates that the owner holds a bachelor's degree in mathematics and her daughter, who helps her, has a bachelor's degree in business from the US. Her reliable general manager, Myo Than, has a master's degree in geography. The number of competitors is increasing, and the majority of workers' mindset is still out of date and they do not want to follow all the positive changes in the factory. The owner asks some well-known business trainers to provide occasional on-the-job corporate training. The company offers two kinds of training for its staff: in-house training and external training. The General Manager, Mr Than, attends many academic short courses externally, such as MJC business short courses and ministries' training, around 5 times per year. For the other staff, every year the company must provide its workers with a "Year Training Plan". In the plan, each department must select capable workers to attend the related training courses; for example, the IR department head must provide 10 or more staff members to undertake training in IR. Mr Than certainly believes that higher education plays very important roles in all the factories, because only higher education can provide employees with a strong background or foundation for thinking concepts to improve their skills further in the industries effectively and efficiently.

Based on these four selected cases, the following is the third model of the relationship between highly educated and skill human resources and industrial development.

Model 3 Non-traditional factories in Myanmar



Source: Drafted by the author.

According to Model 3, there is a connection between highly educated and skilled human resources and factories' development process. A few problems occur here in that many employees are not very highly educated, because Myanmar's higher education system is still not very strong, so the barrier line for very highly educated individuals cannot disappear completely. However, there are many positive signs compared with the past in that the owners of non-traditional factories are very highly educated and most have graduated in foreign countries. Therefore, the more non-traditional factories increase, the more Myanmar's manufacturers will gain the benefits of high-quality products and high productivity levels in their plants.

7.3 Summary

Three models have emerged after studying the ten cases in depth by carefully categorising them into three groups: 1) traditional; 2) semi-traditional; and 3) non-traditional. Based on these three groups, the three models show the relationships between very highly educated and skilled human resources and manufacturing industrial development in Myanmar. **Model 1**, traditional factories, shows that there is no relationship between higher education and manufacturing industrial development. The issues are that the owners of traditional factories in Myanmar think

that higher education is not important for their factories and never provide any levels of employees with any academic or non-academic training. Therefore, it is very hard for this type of factories to pick up technical, knowledge-based, and soft skills and impossible for the plants to achieve high-quality products and a high level of productivity.

Model 2, semi-traditional factories, indicates that there is a connection between educated and skilled human resources and factories' development process. Problems still exist in these semi-traditional factories, because most of the employees are not highly educated and skilled human resources, having not had many opportunities to receive very good professional training in the past due to Myanmar's higher education system being very weak from 1990 to 2011. However, all semi-traditional factories in Myanmar have many positive opportunities to break through the barrier line, as nowadays all factories are setting up academic training for the future. To have a major breakthrough in industrial development, they still have to work a little harder to obtain very highly educated and skilled human resources. Therefore, this type of factories is close to achieving technical, knowledge-based, and soft skills with high-quality products and a high productivity level.

Model 3, non-traditional factories, shows that there is a connection between highly educated and skilled human resources and factories' development process. A few problems occur here in that many employees are not very highly educated, because Myanmar's higher education system is still not very strong at the present time, so the very highly educated barrier line cannot completely disappear. However, there are many positive signs compared with the past in that the owners of non-traditional factories are very highly educated and mostly graduated from universities in foreign countries. Therefore, the more non-traditional factories increase, the more Myanmar manufacturers will gain the benefits of high-quality products and a high level of productivity in their factories.

Chapter 8: Conclusion

To rebuild the manufacturing sector in Myanmar, it is necessary to have more highly skilled human resources and high-quality academic human resource development programmes. To that end, universities are playing key roles in providing high-quality teaching and research and effective programmes. General access to the industrial sector could be improved by increasing the number of educated citizens and the facilities for higher education.

Although Myanmar is today controlled by a new civilian government, which came to power in April 2016, the level of higher or tertiary and technical education in the country remains very weak. This is because Myanmar was ruled by a military junta for over 50 years until 2011, when a quasi-civilian government, backed by the military, came to power under the former president, Thein Sein.

As it lacks sufficient highly educated and skilled human resources, Myanmar will struggle to sustain the technological absorption that effective industrial sector reforms are likely to require in the future. Highly skilled human resources in the manufacturing sector play an important role in expediting industrialisation. Indeed, universities can provide them with the foundations to solve problems and lead production management, quality control, and many of the other technologies and skills required to be suitably qualified persons. When students enter companies with a broad base of knowledge, critical thinking, and problem-solving capabilities, they will be able to learn new information quickly, building on their existing understanding, and thus rapidly move into leadership roles.

The aim of this study is to determine the relationships between higher education and manufacturing industries as well as the way in which tertiary-level academic education can support the quality and productivity developments in Myanmar's manufacturing industries. Considerable research has examined the relationship between higher education and economic development in many countries. This research paper is therefore important in highlighting the situation in Myanmar pertaining to the relationship between higher education and industrial development.

This paper highlights the main weaknesses in Myanmar's higher education system and reveals the best ways for the country's governmental policy makers to reform higher education. Therefore, this study attempts to present the major obstacles to higher education that have long hindered the process of economic and social development in Myanmar. Moreover, the study describes the connections between higher education and manufacturing industrial development, which can help to establish appropriate future directions to boost Myanmar's industrial development and hence rapidly facilitate the country's transition from poor to rich. The study specifically draws on data from in-person interviews conducted with rectors, professors, and lecturers at universities and high-ranking government officers at the Ministry of Education (MOE). Moreover, questionnaires conducted with owners/managing directors and managers from 100 factories and 10 case studies of manufacturers are analysed to clarify the relationships between higher education and manufacturing industries in Myanmar.

The structure of the paper is as follows: Chapter 1 introduces the study; Chapter 2 defines the theoretical framework of the paper; Chapter 3 describes the problems related to higher education in Myanmar; Chapter 4 outlines the government's educational policies in Myanmar over the years; Chapter 5 illustrates the case of Mandalay Technological University's policy; Chapter 6 describes the questionnaire and interview survey conducted with over 100 SMEs and 10 case studies of manufacturers in the Mandalay area; Chapter 7 discusses the issues regarding

10 case studies of manufacturers; and Chapter 8 draws conclusions from the entire paper. The following provides a brief summary of each chapter.

Chapter 1 introduces the research topic and explains the objectives and structure of the study.

Chapter 2 defines the theoretical framework of this paper. This chapter reviews the literature on the role of higher education in economic development. Secondly, the education systems of Japan, Thailand, and Myanmar are compared and contrasted in terms of their similarities and differences in their contribution to job entry, job performance, and job promotion in workplaces. Moreover, students' educational background and employment and promotion systems in manufacturing industries in Japan, Thailand, and Myanmar are studied to enable a further understanding of their different and similar arrangements for employment and promotion practices. This chapter is unique in terms of analysing Myanmar's current education system and the way in which higher education is related to job-hunting strategies, workers' and management's conceptualisation of work, and promotion systems in manufacturing industries.

The first finding from the comparison of job-hunting strategies in Japan and Myanmar shows that Japanese university students' main sources of information when starting job hunting can be ranked as friends, family, university, job advertisements, and employment exchanges. However, differently, Myanmar students' major sources of information include friends, family, job advertisements, and university. The second and third findings indicate that Japanese university students visit many companies and almost all of them have found a job before graduation, but very few Myanmar university students show an interest in visiting any companies and few students have obtained a job before they graduate. The reasons for Myanmar students' lack of interest in visiting companies before graduation are that the recruitment activities are not very dynamic and popular and there is a lack of recruitment information in Myanmar. The fourth finding indicates that few Myanmar students consider their university as an important source when they start job hunting. In Japan, by contrast, many Japanese students think that universities play a very important role in the recruitment process. The fifth finding is that the average number of Myanmar students who visit companies before graduation is very small, whereas the average numbers of Japanese students is high, because companies' rankings are printed every year, showing which companies are the most popular among job-seeking students in Japan. Top-ranking companies receive applications from many eager students. The sixth finding points out that Thai companies sometimes look at university qualifications, the rank of educational institutions, and grades in their recruitment plan. In Myanmar, fresh graduates from university think about jobs rather than companies, whereas vocational graduates focus on occupations that match their qualifications. Myanmar companies, like Japanese companies, consider the students' higher education background and, like Thai companies, look at their job requirements first. The seventh finding states that Japanese factories hire new workers from high school or university, and then they can gain higher-level positions through internal promotion. Directors or the president are gradually appointed from the general workers.

In Thailand, general workers are from high school and junior high school and have almost no chance of promotion to managerial positions. Companies use the mid-career hiring method for employing people with qualifications (master's degree or above/acquired overseas). As for executive posts, they are generally monopolised by members of the owner's family.

Myanmar factories hire their employees fresh from university, high school, or TVET, then they can attain higher-level positions through internal promotion. The Manager or General Manager is gradually appointed from them. Moreover, they apply mid-career hiring as a way of hiring

people with qualifications (bachelor's degree and TVET or high school) and experience. As in Thailand, executive posts are generally monopolised by members of the owner's family. This chapter's theoretical study shows the framework of the entire paper and the overlapping effect on higher education and manufacturing industries in the modern society.

Chapter 3 describes the problems related to higher education in Myanmar. The purpose of this study is to reveal the main issues surrounding the development of Myanmar's higher education system in recent times. Additionally, these findings will be useful for those in charge of higher education policies as well as prospective students and professors who are considering undertaking further research on the development of higher education in Myanmar. This research asks two questions: 1) what are the solutions to the major problems faced by Myanmar's higher education and 2) how can Myanmar's higher education policy makers reform Myanmar's poor higher education system more effectively?

The first finding highlights that it is seriously necessary for all universities in Myanmar to have large enough budgets to send lecturers to study in foreign countries; there must be adequate experience in international relationships and competency; there must be strong English language proficiency; and there must be sufficient funds to strengthen the higher education governance and management capacity. Moreover, universities must have funds for travel to other countries. Additionally, universities, even those that are state owned, must be given full autonomy, budgets, and the necessary funding to make their own decisions.

The second result shows the significant requirement for all of Myanmar's universities to apply decentralisation and maintain strong budgets and funds to conduct qualified research and become world-class national universities; buy the latest lab equipment, useful high-tech materials, and tools; standardise their research centres; and build advanced campuses. The higher education government authority must reduce the ambiguous policies throughout the entire higher education system. Competency training is desperately required for almost all university lecturers to enable them to become internationally qualified teachers.

The third result describes the need for the government to acquire many qualified e-librarians and create standardised e-libraries immediately. Policy makers must retreat from the traditional centralised model and solve the problem of the poor teacher–student ratio resulting from the teacher transfer policy. The government must open more private higher education institutes as soon as possible, provide very good salaries for a teacher capacity-building programme, support funding and budgeting for students' exchange programmes, and create housing for international students who wish to study at Myanmar universities.

Chapter 4 outlines the government's educational policies in Myanmar over the years. The main reform of higher education by the Myanmar government will be to develop a world-class higher education system in which universities have autonomy over their own curriculum and governance and the ability to conduct independent research and to develop a technical and vocational education and training system. To achieve those outcomes in five years, the government has created a National Education Strategic Plan (2016).

This research asks the following question: how can the new governmental policy overcome Myanmar's poor higher education system effectively? The results guide Myanmar's government in enabling the higher education system to meet the global standards and support the government in becoming a systemic problem solver for Myanmar's higher education system. Moreover, this research highlights both positive and negative aspects of Myanmar's higher education system.

Five main findings result from this study: Step 1: totally change the government policy to place authority in the hands of university leaders, deans, and faculty members; Step 2: allow citizens to open private universities officially without delay; Step 3: provide enough financial support for public and private universities; Step 4: urgently change the curriculum based on new knowledge that has been tested, criticised, and evaluated by academics in many different fields; and step 5: adjust the government's reform plan to consider sending Myanmar's students abroad to study while also inviting foreign universities to initiate useful programmes within Myanmar. Myanmar's policy makers must modify their basic ideas by focusing on Japan's interesting programme components for strengthening the management capacity based on the needs of regional and international communities, thereby creating future technicians and managers who will play a leadership role in Asia. Myanmar's policy makers must deeply consider the role of foreign students with very high standards of education who wish to study in Myanmar, as demonstrated in Japan's university reform plan.

Chapter 5, which is related to Chapter 4, analyses the progress of Myanmar's new higher education policy through the use of a case study. In this paper, the case of MTU is used to compare the NESP and the real progress of this plan. Therefore, this research asks the following question: what positive outcomes have been achieved recently by adopting the NESP in a university? The results show that, at the present time, the Ministry of Education is more centralised than before; it has set up more powerless committees, such as the Rectors' Committee and the NAQAC, in its higher education policy; and universities still do not have full authority to manage their academic financial and administrative processes. Moreover, the results indicate that, in the current situation, it is still very hard to achieve some improvements in a short time because of the insufficient financial support from the government. The reason for not having a large budget for education is that the country has spent a lot of money on its civil war and the Rakhine State crisis. Additionally, the results highlight that, in the current situation, it is impossible to improve lecturers' teaching capacities, because every four years they have to transfer from one university to another and, when they arrive there, they have to teach subjects based on the requirements of the university. This transfer problem still cannot be resolved by the government.

Three main findings are produced by this study. In view of strategy 1, the current situation of Myanmar's higher education management system is deviating from achieving positive outcomes in 2022. At the present time, the MOE is more centralised than before in that obtaining approval for relationships with foreign universities takes 45 days. It has also set up more non-powerful committees, such as the Rectors' Committee and NAQAC, in its higher education policy. Although Myanmar's new government claims that there are three levels of freedom in higher education – 1) academic freedom, 2) financial freedom, and 3) administrative freedom – even the first level is still hard to attain. Additionally, there are only 5 universities in Myanmar that hold ISO certification. In view of strategy 2, the current situation shows that it will still be very hard to make some improvements to the above policies in 5 years, because, without enough financial support from the government, the deviation from achieving good quality of higher education will increase. According to the MTU case study, in 2018, the government only provided 3000 USD as a research fund, and this fund had to be divided between 13 engineering departments. The reason for creating finance to support universities is that Myanmar's government has been facing many internal problems, such as the country's civil war and the Rakhine State crisis. In view of strategy 3, the lack of a large enough budget from the government for higher education is the main problem for Myanmar's higher education system. It is impossible to create good teaching capacities of lecturers, because every 4 years they have to transfer from their current university to another, without excuses, and, when they arrive there, they have to teach subjects based on the requirements of the university. This

transfer problem cannot be solved, because, to be fair, the lecturers who are sent to those border areas always want to return to work in the city universities, so no government in Myanmar can solve this problem at all. Here a strong judgement can be made: there is still a very long road ahead to achieve all the positive outcomes. It may take longer than 10 years.

Chapter 6 explains the questionnaire survey and the case study of 100 SMEs. The main objective of this study is to analyse the influence of higher education on the improvement of the business performance of manufacturing firms based on primary data collected from a survey of factories. Bearing in mind the objective of this study, a dedicated questionnaire was developed and used as an instrument to gauge the factors affecting higher education. The questionnaire was sent to more than 100 respondents at the MD level of manufacturing industries, of whom 100 responded.

Three main findings emerged from this study through analysing 100 manufacturing factories using the SPSS programme. The result of this study indicates firstly that there are significant differences in the relationship between the education levels of top-level managers and their factories' performance over the last three years. Secondly, top-level managers of all education levels had the same attitudes towards the importance of higher education to their industrial development. Finally, top-level managers of all education levels had the same attitudes towards the importance of the R&D department to their industrial development.

Four main findings are obtained from this study. Firstly, the performance of productivity, profits, and quality in the factories led by top-level managers with higher education is higher than the performance of productivity in the factories led by top-level managers with lower education. Secondly, the result shows that top-level managers with lower and higher education totally agree that higher education is more important than a lower education level in manufacturing industry development processes. Thirdly, there are no significant differences between lower and higher education levels of top-level managers and R&D departments for industrial development processes. Fourthly, top-level managers with lower and higher education strongly believe that the strengths of employees' technical skills and improvement in the ease of transferring technology definitely depend on the employees who have a very strong academic background.

Chapter 7 discusses the issues of ten manufacturing industry cases. Three new models are provided showing the relationship between higher education and companies' human resource development, namely non-traditional, semi-traditional, and traditional models. The three models appeared after an in-depth study of the ten cases through careful categorisation. They are categorised into three groups: 1) traditional; 2) semi-traditional; and 3) non-traditional. Based on these three groups, three models have been developed to show the relationships between very highly educated and skilled human resources and manufacturing industry development in Myanmar.

Model 1, for traditional factories, shows that there is no relationship between higher education and manufacturing industrial development. The issues are that the owners of traditional factories in Myanmar think that higher education is not important for their factory and never provide any academic or non-academic training to all levels of employees. Therefore, it is very difficult for this type of factories to pick up technical, knowledge-based, and soft skills and impossible for companies to achieve high-quality products and a high level of productivity in the plants.

Model 2 is for semi-traditional factories and indicates that there is a connection between educated and skilled human resources and factories' development processes. The problems still

exist in this semi-traditional type of factory, because most employees are not highly educated and skilled human resources due to the previous lack of opportunities to receive very good professional training and the weakness of Myanmar's higher education system from 1990 to 2011. However, all semi-traditional factories in Myanmar have many positive opportunities to break through the barrier line as they will set up academic training in the near future. To have a major breakthrough in industrial development, they still need to work a little harder to obtain very highly educated and skilled human resources. Therefore, this type of factories is close to achieving technical, knowledge-based, and soft skills with high-quality products and high levels of productivity in the plants.

Model 3, for non-traditional factories, shows that there is a connection between highly educated and skilled human resources and factories' development processes. A few problems occur here in that many employees are not very highly educated, because Myanmar's higher education system is still not very strong, so the very highly educated barrier line cannot disappear completely. However, there are many positive signs compared with the past in that the owners of non-traditional factories are very highly educated and mostly graduated in foreign countries. It can be considered that the more non-traditional factories increase, the more Myanmar manufacturers will gain the benefits of high-quality products and high productivity levels in their plants.

Chapter 8 draws conclusions on the entire paper.

In summary, in accordance with the findings in Chapter 7, "Discussing Issues (Three Models of Ten Cases)", many positive outcomes regarding manufacturing firms' progress with highly educated human resource development are investigated. Nowadays, the ways in which Myanmar's young generations lead their factories are focused more on knowledge-based skills. They can plan and operate in more rapidly progressing ways by training themselves and providing substantial academic internal and external training all year round. Therefore, in the near future, Myanmar's economy will grow rapidly so that the young generations can transform this poor nation into a rich one.

Future studies might benefit from the collection of more data and an expanded sample size focusing on Myanmar's higher education system, which can help to upgrade the industrial development processes in Myanmar effectively and efficiently. The future results might be expected to provide more answers and solutions to the research questions posed and the problems described as well as new insights regarding previously unexpected benefits.

Keywords: Myanmar, policy, higher education, universities, manufacturing industries

Appendix (1)

Questionnaire

Investigation of the relationship between higher education and industrial development in Myanmar

This questionnaire is a part of academic research for a Ph.D. in Meijo University. The objective of this study is to discover the strong connections between higher education and industrial development in Myanmar.

Part I: Personal Information

Please mark ✓ in the ☐ only for the option selected.

1. Gender

☐ Male

☐ Female

2. Age

☐ 17–25 years

☐ 26–35 years

☐ 36–45 years

☐ 46–55 years

☐ Over 55 years

3. Your Highest Education Level (Finished)

* Please describe your *major or field* of study: _____

☐ Bachelor's degree

☐ Master's degree

☐ Ph.D. degree

☐ Other: _____

4. Your Position

☐ Managing Director

☐ CEO

☐ General Manager

☐ Other: _____

5. Type of your business (*students and teachers do not need to answer*)

- ☐ Labour-intensive manufacturing
- ☐ Machine-intensive manufacturing ☐ Other: _____

Part II: Characteristics of Business Firms

Please mark ✓ in the ☐ only for the option selected.

6. Name of your business (optional): _____
7. Nature of your business: _____
8. Industry/manufacturing item: _____
9. Years of operation: _____
10. Total number of employees (full-time): _____
11. Total annual sales: _____

Part III: Conditions of Industrial Performance

(Please circle the appropriate number)

12. Could you please describe your company's past three years' performance?

Items	Highly decreased	Decreased	Slightly decreased	Neutral	Slightly increased	Increased	Highly increased
Annual sales	1	2	3	4	5	6	7
Annual net profit	1	2	3	4	5	6	7
Productivity	1	2	3	4	5	6	7
Number of employees	1	2	3	4	5	6	7
Market share	1	2	3	4	5	6	7

Part IV: Attitudes towards the Industrial Success Factors of HR Performance

13. How will you evaluate the strengths of employees' successful performance in your factories?

Items	No impact	Low impact	Neutral	Slight impact	Impact	Strong impact
Having a good higher education	1	2	3	4	5	6
HR training in your company	1	2	3	4	5	6
Quality of your trainers	1	2	3	4	5	6
Share with others in your company after you have attended trainings	1	2	3	4	5	6
Hard working without higher education	1	2	3	4	5	6
Hard working with higher education	1	2	3	4	5	6
A lot of experience without higher education	1	2	3	4	5	6
A lot of experience with higher education	1	2	3	4	5	6
Having local higher education	1	2	3	4	5	6
Having international/foreign education	1	2	3	4	5	6
Having skilled local engineers	1	2	3	4	5	6
Having skilled foreign engineers	1	2	3	4	5	6

Part V: Attitudes towards Having a Strong Research and Development Department

(Please circle the appropriate number)

14. Does your company have a strong department for R&D?

- ☐ Yes
- ☐ No (please specify: _____)

If you answer is “Yes”, please do not answer 20.1.

15. Do you think having a strong R&D department is essential to develop your factory’s productivity?

- ☐ Yes
- ☐ No

If you answer “No”, please do not answer all the following questions.

15.1 Do you plan to have a strong R&D department of in the next year?

- ☐ Yes
- ☐ No

16. Could you please describe the impact of an R&D department on the factory development process?

Feature (R&D department in your factory)	No impact	Low impact	Neutral	Slight impact	Impact	Strong impact
Achieving new product development process	1	2	3	4	5	6
Finding new ways to build up competitive advantages	1	2	3	4	5	6
Boosting the vision and objectives of a factory	1	2	3	4	5	6
Achieving better outcomes for investors and overall being more innovative than their competitors	1	2	3	4	5	6
Easily leading to highly valued technologies, strategies, and designs	1	2	3	4	5	6

Part VI: Attitudes towards the Role of Technology Transfer in a Factory

(Please circle the appropriate number)

17. Does your company have an experience of technology transfer?

- ☐ Yes
☐ No

If you answer is “No”, please do not answer 23.1.

18. Do you think having skilled engineers is essential to have a technology transfer process?

- ☐ Yes
☐ No

If you answer No, please do not answer all following questions

18.1 Do you plan to have a technology transfer process in the next year?

- ☐ Yes
☐ No

19. Could you please describe the strengths of employee technical skill and improvement in the ease of the technology transfer process?

Feature <i>(strengths of engineers in the technology transferring process)</i>	Not important	Low important	Neutral	Slightly important	Important	Very important
Employee higher education levels	1	2	3	4	5	6
Employee academic training programme	1	2	3	4	5	6
Employee professional training frequency	1	2	3	4	5	6
Frequency of attending external academic training	1	2	3	4	5	6
Frequency of attending internal academic training	1	2	3	4	5	6
Employee academic skills	1	2	3	4	5	6
Employee professional knowledge	1	2	3	4	5	6

Appendix 2. List of Abbreviations

EQA	External quality assurance
HEI	Higher education institute
HR	Human resource
IQA	Internal quality assurance
IR	International relationship
JICA	Japan International Cooperation Agency
MJC	Myanmar Japan Centre
MOE	Ministry of Education Myanmar
MOU	Memorandum of understanding
MTU	Mandalay Technological University
NAQAC	National accreditation quality and assurance committee
NEC	National education committee
NESP	National education strategic plan
NIHED	National Institute for Higher Education Development
QA	Quality assurance
QMR	Quality management relationship
R&D	Research and development
STEM	Science, technology, engineering, and mathematics
TVET	Technical and vocational education and training
UTCC	University of the Thai Chamber of Commerce
VT	Venus Theingi

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