

Japan's Development and Education - Past, Present and Future -

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Abstract

One-hundred and fifty years ago, Japan embarked on a voyage towards modernization. To catch up with the West it introduced Western institutions, in unique ways to adopt to the unique needs. It was typically the case with education. While the initial forms and contents of the school system was taken after that of the West, they were tailored to the needs of the Japanese society. The strategy bore substantial achievements, but the legacy poses considerable challenges when Japan heads for a fresh mode of development in the 21st century. This paper tries to reflect upon the process by tracing from the initial investment on universal primary education (section 1), to a particular regime that relate society, economy and education that eventually contributed to acceleration of economic advancement (Section 2), and to the various contradictions that the growth-regime had created, and the ways to overcome them to prepare a fresh mechanism (Section 3).

Modernization and Education

When Japan set out for modernization in the late 19th century, Japan was

an old feudal society predominantly dependent on agriculture. Literacy rates among the population were fairly high (Dore, 1976), but there was no concept of modern curriculum or school system. Nonetheless, the leaders of the new-born regime deemed education, particularly primary schools as the key to national development.

Education and the stages of development

Before going into details, it would be worthwhile to overview the relation between the changes in participation in education and the stages of economic development over 150 years since Meiji Restoration in 1868. Figure 1 shows long-term changes of enrollment rate in primary, secondary and tertiary education since 1870s. It indicates that the development had three distinctive stages (Kaneko, 2013b).

Phase 1: Since Meiji restoration (1868) until WW1. From the perspective of educational development, this is the period of establishment of the modern education system, and diffusion of primary education. From the perspective of economic development, this is the period of institutional build-up along with initial accumulation of social capital (Ohkawa and Rosovsky, 1973).

Phase 2: The period between two World Wars. The focus was set on the completion of universal attendance at the primary level. Meanwhile, secondary and tertiary education started expansion. From the perspective of economic development, this is the initial stage of modern economic growth.

Phase 3: With the intermission due to WWII, education and economy went into a new phase of development. Lower secondary education became compulsory, and higher secondary education grew rapidly to reach practically universal. Higher education started expansion – participation (including four-

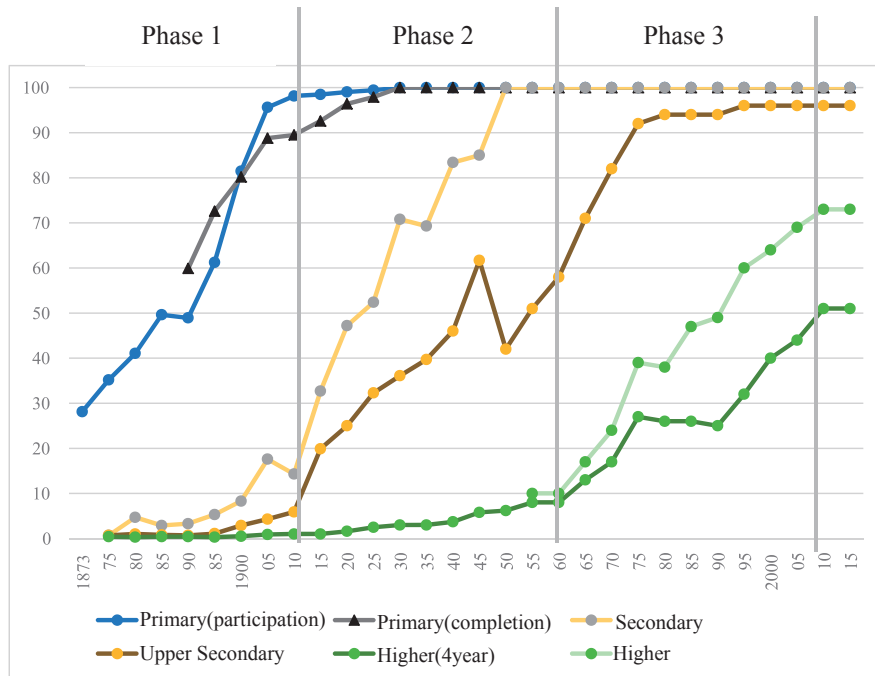


Figure 1. Phases of Educational Development 1875-2015

Source: MEXST, Japan, School Fundamental Survey, various years

year and two-year institutions) approached the seventy-percent level by 2000. From the economic perspective, this is the period of accelerated economic growth.

The relation between education and economic growth shifted from one phase to another.

Phase 1: Commitment to primary education

One of the foremost characteristics of Japanese development was the firm determination to establish primary education as the basis of national

development. While building up an education system primary through higher education, Japan laid particular emphasis on diffusion of basic education. That may sound trivial considering that primary education is the basis of modern educational systems, but it was not historically the case in the West. On many European countries higher and primary education developed independently, each corresponding to a social strata. It was in the second half of the 19th century that they were finally integrated to a national system of education (Flora, 1967). In the U.K., for instance, compulsory primary education was not established until 1870 (West, 1965). It was exactly in this period that Japan embarked on its belated journey of modernization.

Soon after Meiji Restoration of 1868 Japan started building a modern education system. In the fifth year of the new regime (1872), the Meiji government proclaimed a plan of a new national education system, comprising various schools at primary, secondary and higher education. However, an attached document to the statute declared that the foremost priority should be given to primary schools (MEXT, 1972, p.134).

This policy may not have been necessarily derived from deliberate strategy for social development. Rather, it was based on the belief that education is indispensable “for any individual to establish himself, govern a household and prosper through occupation...” (Grand Council Promulgation, 1872).¹ In other words, the basis of a modern nation should be established individuals and they should be formed through universalized education. One may note that this thought based on individual values will be transformed into more collective view on nation in the later period.

Japan at this period was an underdeveloped feudal nation predominantly

¹ Quoted in MEXT 1972, p.124.

based on agriculture. Even though it is estimated that literacy rates were already as high as seventy-percent among boys, the majority of children received virtually no schooling. It is also important to recognize that the immediate pecuniary return to education should have been minimal, or even negative, considering that child labor was valuable in an agrarian economy. Moreover, the Meiji government at this point had a very small tax base allowing for only a small expenditure on primary schools. The burden of building and running primary schools was mainly put on the shoulders of local communities.

Nonetheless, the ideal of primary education was accepted by the Japanese to overcome the obstacles. Figure 1 above shows that gross enrollment rate in 4-year primary schools increased from the 30 percent level in the 1970s to 80 percent by the beginning of the 20th century, and then to almost 100 percent level in the first decade of the 20th century. A gross enrollment is derived as the ratio of enrolled students to the number of total school-age students. A gross enrollment rate of 100 does not necessarily imply that all the children completed primary education, it only stands for the ratio of enrolled students to those at appropriate age bracket. In fact there was a significant amount of “wastage” of students, who dropped out before graduation (Amano, 1997).

Phase 2

Japan's education went into the new stage, which spanned from the period of World War I until the period of World War II. This is the period when universalization of primary education was achieved, while secondary, and then higher education started initial stage of expansion. From the perspective of economic development, this is the period when the modern sector of economy took off. That included the manufacturing sector equipped with Western

technology and machines, the finance sector to accommodate their need, and the government sector.

It should be emphasized that Japan at this stage still maintained the thrust towards universalized primary education. Even though primary education gained substantial expansion in the first period, the completion rate of primary education did not reach eighty percent until the turn of the century. In order to push up the completion rate, the national government employed various measures including shifts in teaching methods, improvement of teacher education, and subsidies to low-income areas. Through these policies, the completion rate of primary education approached one-hundred percent level by the 1930s.

It is well known that Psacharopoulos (1973) argued that high rates of return to investment on primary education signifies the priority of investment should be directed to primary education. However, there is something to be added to this argument from Japanese experience. In this period Japan took the policy to drive down the rate of return. When everybody has primary education, one with primary education would have little advantage over the others. Employers could then exploit the ability formed through primary education at no extra costs. This provided the basis for ensuing economic growth.

It should be noted that Meiji government did not invest to build secondary and higher education. The University of Tokyo was established in the tenth year of Meiji period, or 1876. It was expected to be the focal point to introduce the Western culture and civilization. Subsequently, other types of higher education institutions were built catering various needs to provide professional workforce. Various secondary schools were established in the early periods after Meiji Restoration either as preparatory schools for higher education or as the places for training middle level professional.

However, it was only after World War I that they started growing substantially in number. By the end of 1930s, participation rate at the secondary education reached the 50 percent level. The government, however, did not necessarily drive expansion of secondary and higher education over this period. The driving force was rather the emerging economic growth itself.

As Japan had to develop its modern industries almost from nothing, the Meiji government imported technologies, social and physical capital from the West. That created an enclave of capital-intensive and efficient modern sector, while the vast majority of the economic activities were still taking place in the agriculture or traditional manufacturing or commerce. This resulted in a dual structure with a wide schism between the modern and the traditional sectors. On one hand there was a group of modern firms equipped with modern technologies, which were typically of large scale and affiliated with business groups. On the other, there was a large sector of medium- an small-scale firms which relied primarily on low-wage labor. It was natural then that larger corporations tended to offer better wages and benefits than the medium and small sizes.

It drove many households to demand education beyond compulsory primary education. Meanwhile, economic growth bore increases of households that could afford the cost for secondary education. That created political pressures for the Local governments to build secondary schools. Most of them charged a fairly substantial tuition fees. There are also various kinds of private secondary schools that were run on tuition.

Thus economic development and the growth of secondary and higher education went on hand in hand. This mechanism functioned more fully in the postwar period, which will be discussed in Section 2.

Strategy of investment on education

How can the historical process described above be interpreted as a national investment strategy? How was it different from what experiences in the Western Countries?

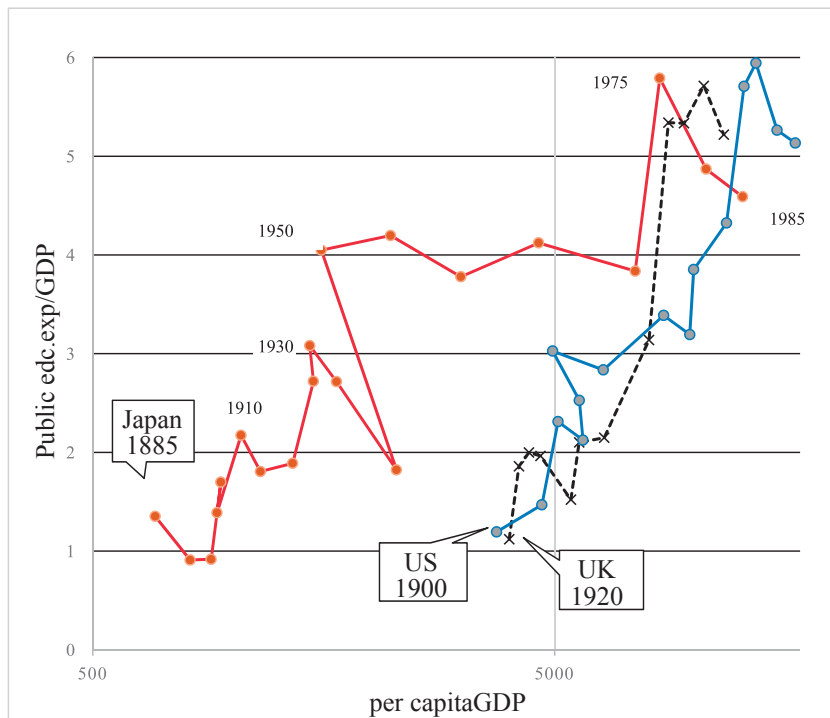


Figure 2. Historical Paths in Investment on Primary and Secondary Education in Japan, UK and US

Source: Ministry of Education, Science, Sports and Culture, Japan (MEXT) (1962). *Nihon no Seichou to Kyouiku [Japan's Growth and Education]*. Tokyo: Ministry of Education and Culture. Japan, Ministry of Education. U. S. Department of Commerce (1975). *Historical Statistics of the United States: Colonial Times to 1970*. Washington: U.S.G.P.O. Vaizey, John and Sheehan, John. (1968). *Resources for Education: An Economic Study of Education in the United Kingdom, 1920-1965*. London: George Allen and Unwin Ltd.

In Figure 2, the horizontal axis stands for the level of estimated per capita GDP (in 1965 price and expressed logarithmic scale), and the vertical axis for the share of public expenditure on primary and secondary education in GDP. Each point in the space stands for the combination of the two indices for a particular country at a particular time period, and the path connecting the points stands for the historical path from this perspective. Estimates for Japan, the U.K., and the U.S. are presented.

The figure demonstrates first and foremost that Japan started investing on basic education when it was at a very early stage of economic growth, as represented by the low level of per capita GDP.

In 1870, Japan's per capita GDP was still well below 1000 dollars, it spent more than 1 percent of GDP on basic education. Even though economic growth remained low until 1910, the share of educational expenditure went up to 2 percent. This compares with the cases of the UK and the US, whose expenditure on basic education remained at around 1 percent even in the early 20th century, when in both countries per capita GDP reached about 4000 dollars level.

This implies that Japan in Phase 1 spent unusually large resources on basic education. While the national government lacked sufficient financial resources, it succeeded in persuading the general public that providing basic education was essential for individual achievement as well as national development. With the backdrop of this ideology, local communities were held responsible to bear the burden of establish and support primary schools based on local resources.

Through that policy the government succeeded in establishing a substantial part of primary education, but it left economically backward area lagging behind. As the modern economic growth started, the national government started subsidizing economically backward regions to strengthen teacher education and school facilities. Through these measures, primary education was

universalized in the 1920's.

The high basic skills in reading and writing commonly shared by the whole population provided the basis for the dynamic economic growth. Business enterprises made substantial investment on education and training of the workers. The high levels of basic skills rendered in the schools system was then combined with specific knowledge and skills required for the job. The combination proved to be effective especially in raising the level of technology and efficiency in the manufacturing sector.

It should be added that the Figure also demonstrates that after WWII, per capita GDP started increasing rapidly, to the point that the paths of the three countries finally started converging. This process of accelerated growth is the subject of the following section.

“J-Mode”

The type of the link connecting between economic growth and education gradually formed during the interwar period functioned to a fuller extent after WWII. This I would call a “J-mode.”

Postwar reforms and accelerated growth

Before dealing with the function of J-mode, it is important to note the social and economic environment of postwar Japan.

The end of WWII left Japan with a devastated economy. At the same time, it forced every aspect of Japanese institution to change, that facilitated a fresh ground on which a new mechanism of development grew. The pervasive land reform eroded the class structure of prewar period, raising the aspiration of

social ascendance among the vast majority of population.

Educational reform transformed the dual-track structure into a single-track structure, which opened the opportunity of higher education. The heavy emphasis on basic education was maintained in the postwar period. Lower secondary education was made compulsory, to extend the minimum schooling to nine years. The remaining disparities in economy among different areas in the country necessitated heavy subsidy from the central government to the local governments.

Obviously, these changes took efforts. Compulsory lower secondary education was not enforced without considerable sacrifice of the local communities amid major social strife during the 1950s (Kaneko, 2011). Nonetheless, the economy started picking up in the 1960s, and education was involved closely in the process of renewed economic development. Every youth had at least nine-years of school education. It also created the basis to open the opportunity of upper secondary education, and eventually higher education.

The J-Mode

Through the postwar economic growth, those factors described above were galvanized to create a peculiar pattern of relation of education-economy link which I shall call a "J-Mode." The mechanism of the can be analyzed as the interaction among three factors, i.e., the government, families and employers.

Household

The removal of social barriers from the prewar period, and the postwar educational reform that opened opportunities of secondary and higher education stated above created the basis of aspiration among the population for advancing

to higher levels of education.

Meanwhile, the dual structure of labor market formed in the prewar period had remained in a slightly different form. With the expansion of the economy, the business corporation grew and multiplied, to constitute a hierarchy with respect to productivity and benefits for workers. This created a steep hierarchy in the segments of the labor market. In order to get in the upper segments one has to have higher credentials in education.

This made up strong motivation for the parents to send their children to higher levels of education. As the economy grew rapidly in the 1960's and the family income levels rose rapidly, as much as ten percent per annum. It meant that if a household maintained the same consumption level as the previous year, it would have ten percent of extra savings that could be diverted to education. Thus, upper secondary and higher education became affordable to the vast majority of the population. That led into an explosive expansion of the demands for upper-secondary and higher education.

From the perspective of individual families and children, it also meant that one has to go through fierce competitions. For the reasons discussed below, the business firms in the upper echelon of the hierarchy, preferred graduates from more selective institutions with respect to admission of the students. In this sense, the fact that the students were admitted to the institutions at higher tiers in the hierarchy among higher education institutions had significant value. The traditional commitment to education, and the fierce competition over entrance to selective colleges had created pressure on students to devote many efforts to mastering what they are taught at high schools.

In short, the whole process functioned as a system of motivating youths for mastering basic academic capacity. It is important that the process worked not only on the small proportion of children from middle classes, but also the

children from lower income families.

Government

At the early stage after the War, the utmost goal for the government in the 1950s was to accomplish the postwar educational reform. However, through the 1950s, demands for upper secondary and higher education started to grow. The government initially took a restraint policy – maintaining the quality of schools which had been badly hurt during the war had to be given the priority.

As the popular demand for secondary and higher education grew, the political pressures to allow expansion mounted, and the Ministry of Education eventually gave in. However, the government lacked enough financial resources to provide for sufficient upper secondary schools and higher education institutions to satisfy the demand. Instead, it took the policy to allow the private sector to expand, either through increasing the enrollment of existing institutions or through allowing new ones to open. In other words, frustrated demands were satisfied by the private sector, which was financed mainly by contribution from the family.

On the other hand, the government diverted the limited financial resources on the national institutions, which accommodated less than 20 percent of undergraduates. Particularly, departments of engineering and natural sciences were expanded substantially throughout the 1960s, securing the supply of technical engineers necessitated for development of fledging machinery and chemical industries. It should be also noted that the tuition at the national universities was kept at a much lower level. This in effect created a strong incentive for the talented high school graduates to advance to engineering and natural sciences courses at national universities.

The industry

The fast universalization of lower secondary education created abundant supply of young labor force equipped with basic knowledge. In the 1960s, the focus of development shifted to heavy and manufacturing industries catering the opening export market. That necessitated a large number of production workers, The lower secondary schools functioned in effect rendered a mechanism to recruit the young labor population to the industrial centers through a nationally organized.

The growth of the economy also created demands for related finance and commerce industries, as the economy grew, not only manufacturing but also various commerce and services industries grew. Graduates from upper secondary schools were employed in those sectors. Eventually, the industries started employing college graduates, not only as engineers and sciences but also white-collar jobs. It was mentioned above that the increasing high school and university graduates filled this need.

It is unclear whether the growth in the demand of educated workers induced increased supply of educated workers, as economic logic would like to see. Probably, the reality was much more intricate.

The strength and efficiency of Japanese firms derived from the knowledge shared locally at the work place. The body of the knowledge encompassed unique sets of information and know-how that improve efficiency under the particular setting of production, or “Tacit Knowledge.” In producing goods or rendering services, any worker should be equipped with a body of knowledge and skills that are not necessarily systematized or expressed in the form of writing. They are created within the organization through addressing practical problems that the organization is facing, and shared and transmitted through the

workplace. Lifetime employment provided its basis.

Even college graduates were not necessarily required to be equipped with specialized and theoretical knowledge taught at college. They were required to have a high level of basic academic ability to participate in creation of knowledge and absorb what had been created. Such an informal process of creation, accumulation and sharing of knowledge in working organization is considered to be the critical key to efficiency.

From this perspective, the fierce competition over admission on more selective institutions constituted a very refined system to locate academic ability. Entrance examination became increasingly elaborate to measure academic achievement, albeit at the time of entrance to college, rather than graduation. It gave the business enterprises a good means of locating of basic competence, which presumably provides the basis for the kind of knowledge and skill formation in the workplace.

J-Mode as a development strategy

The arguments above indicate that the J-mode functioned as a mechanism of connecting education and economy in an unique way.

First, it worked as a mechanism to mobilize financial resources into the education system. Through the period of rapid economic growth, the growth of government revenue was limited relative to the growth of GNP. The surplus was spent on investment for further economic development. As it was pointed out above, the government concentrated its limited resources on upgrading basic education, and on building capacities of higher education institutions to train strategic manpower for economic growth. The rest of educational opportunity was financed by the contribution from the family.

Second, it functioned as a mechanism to create aspiration for further education, and the aspiration to study among youths. The requirement and rewards for study was demonstrated in the form of entrance examination for senior high school, and then higher education institutions. It worked as a simple and strong device to motivate the youths to study the academic subjects and core academic competences. In various exercises in international comparison of academic achievement of children including the recent PISA project (OECD, 2017), Japanese children have shown high levels of achievement. Another international project by OECD on adult knowledges and skills showed the Japanese population has a high competence (OECD, 2016, 2018).

Third, the severe process of competition for entrance examination created a device for identifying talented youths. Moreover, the core competences created as a byproduct provided the basis for further investment in human resources at work, which under the particular mechanism of Japanese firms, contributed to forming efficiency in production.

It is also important that the whole regime around J-mode assured a particular regime of social justice. A large proportion of the population was allowed to participate in the competition in entrance examination, and in fact they did. The competition in entrance examination was at least technically fair. Provided with the growth in family income, the economic factors did not form substantial bias for the large part of population.

However, this mechanism creates its own problems. It become increasingly clear in the 1980s.

Challenges for a New Cycle

The mechanism thus created, or the J-Mode, that worked in the postwar

growth started showing significant problems towards the end of the 20th century, as the Japanese economy itself started experiencing problems that have not been seen before.

Consequences of the J-Mode

One of the negative consequences was the excessive pressure on children at their early ages. Given that the higher education institutions are highly differentiated with respect to selectivity and the rewards for entering selective institutions visible, competition over entrance to more selective institutions intensified. The more competitive the entrance examination became, the greater the accuracy of entrance examination in predicting innate ability. Employers knew exactly which schools require greater ability for admission, and that provided very simple and reliable information for recruitment. The hierarchy in the school system was thus closely linked with that in industrial structure. Through this correspondence, the structure tended to feed on itself.

R. P. Dore, a British sociologist, called it "Diploma Disease." (Dore, 1976) The vague impression shared widely by the Japanese is symbolized by a few key words including the term "Gakureki-Shugi," a word roughly translates into academic credentialism. It was argued that higher education has grown beyond the level that the economy needed. The graduates from higher education took up the jobs that did not require higher education. They are only replacing high school graduates, only because the employers prefer them. Once started, the expansion in demand continues by its own momentum.

There is no doubt that the process is a very oppressive one for individual children. Some critics saw in this process of self-reinforcement a symptom of social ailment. It created pressure on high school graduates to succeed in entrance examination of college graduates. It then created a pressure on school

children to succeed in entrance examination to get into better high school or junior high school. The regime of entrance examinations thus constituted what may be called an “examination hell.” That invoked a widely held sense of guilt on the side of adults.

Education thus had been seen as a symptom of social ailment that has to be addressed politically. The pressure created through this process subsequently resulted in policy changes in early 1990s in the form of diversification of high school courses and entrance examination to university. Also, curriculum requirements stipulated in National Education Standards. These changes took place when the 18-year old population started its long-term decline. Consequently, the pressure on entrance examination has lost influences on a part of 18 year-olds, but the basic structure of the J-Mode failed to change.

Changing environment

At the same time, the social and economic environment started changing dramatically since the 1990s.

Changes in value and behavior

Fundamental changes came from the shift in the values held by the public. In the period of economic growth, the desire of typical family was focused on acquiring the living standards of middle class. Majority of the parents wished, but were unable, to advance to high school and college. There were clear goals to be achieved in lifetime, and the precondition for achieving such goals was educational credential. Parents hoped their off-springs to get into the path leading to better life, and the initial step was education. They could persuade the children of its importance. Children took the message to follow the rule of

competition and prepare for the future at early ages.

But such logic of persuasion has now lost its ground when the economic growth made it possible for the majority of population to achieve the living standards of typical middle class.

Meanwhile, Japan is anticipating a drastic demographic shift. Birth rate has started a significant decline in the 1980's, resulting in contraction of college going population old in the latter half of the 1990's and towards the first decade of the 21st century. The size of 18-year old will decrease from more than 200 million in 1990 to about 110 million by 2020. Because the enrollment capacity of higher education institutions even expanded, the supply of college education has exceeded the demand. Consequently, many non-selective institutions are in effect no longer screen entrants through examination.

The competition over admission in more selective institutions remains, but even that is losing its grip. Responding to these environmental shifts, many colleges - private or national – are now reducing the number of required subjects to be covered in entrance examination.

Economic environment

Meanwhile, industrial and professional structures are changing with the advent of new generation of technology-intensive products, global mobility of production and capital. Japan's economic growth had been spearheaded by large-scale corporations in heavy/chemical and machinery industries. Due to the emergence of information processing technology and biotechnology, innovative products were developed by relatively small venture capitals rather than by large manufacturers. The high-birth and high-mortality business model would require educated workers who would tolerate high risk and high return, and would not be confined to large corporations.

These changes affected the economies of industrialized countries, but the impact had been particularly felt strongly in Japan. The regime of human capital formation in Japanese corporations, and the J-mode, that had worked so effectively in improving economic productivity so far suddenly seem to be irrelevant in the face of emerging tide of economic competition.

In the emerging competition competitiveness arise from finding new combination of technology and demands. Business enterprises have to change their organization constantly inducing high levels of labor mobility. Consequently, the skills and knowledge required for work becomes increasingly diverse. They also become obsolete very shortly. In order to equip the workers with such skills and knowledge, the firms can no longer rely on the existing knowledge and skill formation in the workplace. Outside sources have to be utilized for in-house training. At the same time, some workers are required to have specific skills to get a new employment opportunity. In short, specific knowledge has to be acquired constantly beyond the realm of existing organization.

Looking from this perspective, J-mode has significant limits. Since it is based on the existing organization, it is ineffective in creating and transmitting the kind of knowledge not required by the organization. It is difficult to introduce innovation arising from outside of the organizational. When it is expected that technology or demands are about to undertake a substantial shift, this makes a critical disadvantage.

Moreover, set in the environment of global economic competition, many enterprises are forced to struggle for survival and to achieve short-term benefit is given priority. They have to respond to the changes in the market and technology as quickly as possible. Under these circumstances, it is becoming increasingly difficult for the enterprises to sustain the lifetime employment system. While

the business firms try to retain the core of managerial workers in the shield of lifetime employment, they have to allow increasing proportion of white-collar works to be mobile. One cannot be assured for protected employment after college education.

All of these changes add up to cause erosion of the ability of the educational system in motivating and instilling certain sets of skills and knowledge on children. In short, as economic growth become more dependent on non-linear development of technology, and as new products are developed outside the existing firms, the Japanese system of human capital formation based on the existing organizations lost its effectiveness.

Challenges

The above discussion illustrated that the J-mode of education-economy link that once worked well to bring about efficiency in economy now faces formidable challenges. On one hand, due to its past success in creating wealth its structural basis is no longer secure. On the other hand, it has critical problems in responding to the needs of the knowledge society. How would Japan respond to this Challenge?

Creation of learning

The first issue is how to induce a new form of learning among the youth for the coming century. It was stated above that the learning motivated for entrance examinations is losing its force. At the same time, the type of stylized subject knowledge typically summarized in textbooks will not be sufficient in the diversified and fluid society. The youth will have to have the ability to perceive unfamiliar environment and make judgements for action. One may call it a “generic competence.”

Recent revision of the National Standard for Curriculum is an attempt to cater to this need at the primary and secondary level of education. There have been movement to popularize “student-centered teaching,” “participatory teaching,” and other teaching styles. It remains to be seen how these movement bear fruit.

I would argue, however, that more significant problems lay at higher education level. Because of the problems described above, Japanese higher education institutions have not been truly successful in inducing learning. It remains true to this day, as evidenced surveys on students learning. To rectify this problem, various efforts are needed. (Kaneko, 2013a).

Relevance

Second, the relation between education and work has to be reexamined. This is mainly the issue at higher education level. It was stated above that Japanese firms have not expected specific knowledge from fresh recruits from college. As a result the link connecting work and education has been rather obscure, with exception of health-related professions. Meanwhile, the workplace sharing of knowledge and skill is losing its ground. How can new relations between work and college education be formed?

Again, there seem to be no immediate answer to this question. One can state at least that the link should be diversified. Some schools would concentrate to provide specialized professional knowledge, while others would provide educational programs aimed at fostering generic competence. There will be more courses for adult and working learners.

The educational system, particularly higher education, will have to accommodate the diversified function, while maintaining the integrity as a system. Again, the society has to grope for a future direction.

Resource mobilization

The other aspect is educational policies and finance. As was stated above, the expansion of secondary and higher education Japan was made possible with substantial contribution from the household. It was possible in so far as the household income kept growing. With the slowdown of growth rate since the 1990s, the household has become less capable to support the costs. In fact, the proportion of students that used the national loan scheme for university students, which hovered around 10 percent level until 1990, increased steadily to almost reach the 50 percent by 2010.

Meanwhile, the focus of educational development should be shifting from quantitative expansion to qualitative enhancement, particularly in higher education. That would naturally require significant resources. However, the prospect of the government to contribute resources is remote provided with the present financial stringency. However, past experiences in Japan, or elsewhere in the world, indicate that the market mechanism is not suitable in inducing better quality.

This again leads to a quandary that is beyond the scope of this paper.

The relation between education and economy has shifted throughout the process of economic development in Japan. It is shifting again, and we do not know exactly how it would look like eventually. But come to think of it, the past shifts should have not been easy. It is with this conviction that we keep struggling to find a fresh form of the relation.

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日本發展與教育的過去、 現在和未來

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摘要

日本在一百五十年前展開現代化的旅程。為了趕上西方國家，日本以一種獨特的方式引進西方制度，以應其獨特的需求，教育方面尤其如此。學校體系的形式和內容雖然取自西方，卻經過一番量身修改以合適日本社會的需求。這樣的策略收效甚大，卻在二十一世紀日本打算採取新發展模式時構成了挑戰。本文回顧這個過程，首先回溯日本最初在全民初等教育上的投資，其次，檢視社會經濟教育相結合的制度所獲致的經濟加速進步，最後，檢視伴隨成長而來的各種矛盾，以及克服矛盾建立全新機制的方法。

關鍵詞：日本、教育、發展、現代化

壹、現代化與教育

十九世紀末展開現代化之時，日本還是一個以農業為主的封建社會。當時整體人口的識字率相當高（Dore, 1976），但並沒有現代課程或學校體制的概念。儘管如此，新生的政權領導人還是將教育（尤其是初等教育）視為國家發展的關鍵。

一、教育與發展的各個階段

在進入細節討論之前，我們可以先概略檢視1868年明治維新以來的150年間，教育參與程度的變化與各個階段的經濟發展之間的關聯。圖1為1870年代以來初等、中等和高等教育入學率的長期變化，顯示發展可以明確的區分為三個時期（Kaneko, 2013）。

第一階段：明治維新（1868）至第一次世界大戰。從教育發展角度以觀，這一階段奠定了現代教育體系，普及了初等教育。從經濟發展角度以觀，這一時期伴隨著起初的社會資本蓄積而有教育制度的建構（Ohkawa and Rosovsky, 1973）。

第二階段：兩次世界大戰的戰間期。這一階段的焦點在於達成初等教育全民入學，中等及高等教育也同時開始擴張。從經濟發展角度以觀，這是現代經濟成長的初始階段。

第三階段：教育和經濟發展在第二次世界大戰的中斷後進入新的階段。初中教育成為義務教育，高中教育則迅速成長到近乎涵蓋全國。高等教育開始擴張，到2000年（四年制或兩年制）高等教育參與率已達到70%。從經濟角度而言，這是經濟加速成長的時期。

教育與經濟成長的關係因不同階段而有異。

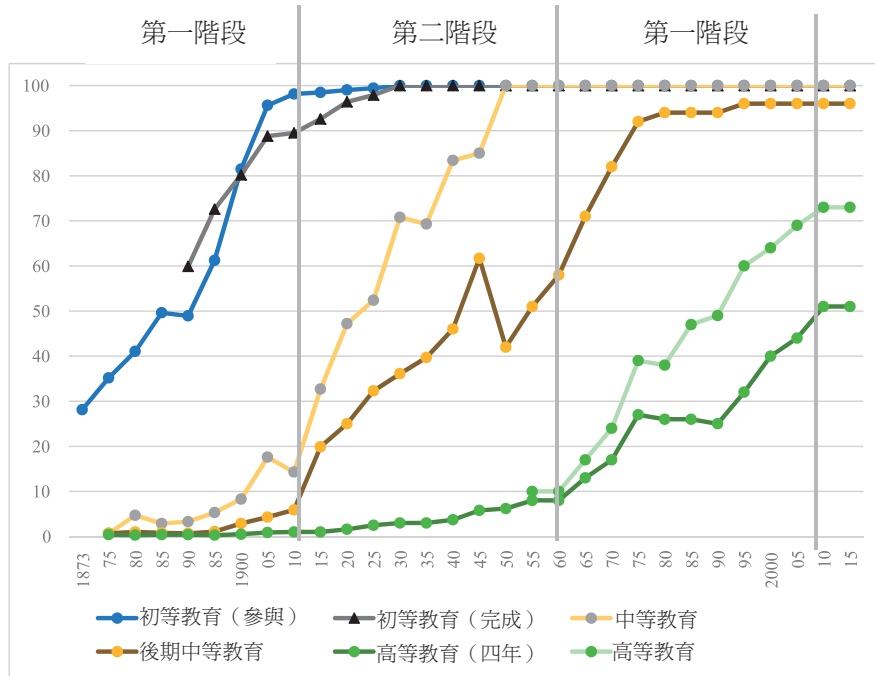


圖 1 日本 1875-2015 教育發展的階段

資料來源：MEXST, Japan, School Fundamental Survey (各年份資料)

第一階段：致力於初等教育

決心推動初等教育以作為國家發展的基礎，是日本發展最大的特色之一。在透過高等教育打造教育體系的過程當中，日本也格外投注於初等教育的普及。初等教育是現代教育體系的基礎，這在今日聽來不足為奇，但西方世界並非一開始就存在這樣的想法。許多歐洲國家的初等教育和高等教育獨立於彼此而發展，各有其對應的社會階層，是到了十九世紀下半葉才被整合進入一個國家教育體系 (Flora, 1967)。以英國為例，義務初等教育直到1870年才告建立 (West, 1965)，日本也在這個時候展開了遲來的現代化旅程。

1868年明治維新之後，日本開始建立現代教育體系。在五十年代的明治時期，政府宣布了國家教育體系的新計畫，將初等、中等、高等教育都納入其中，不過有但書規定以初等學校為最優先（MEXT, 1972, p.134）。

這項政策不必然是基於對社會發展策略的深思熟慮，而比較是因為人們相信「對於任何個人來說，不論是要建立自我、維持家庭、還是透過工作而繁榮」，教育都是不可或缺（Grand Council Promulgation, 1872）。¹換句話說，現代國家應以成熟的個人為基礎，而成熟的個人是由普及的教育所養成。值得注意的是，這個以個人價值為基礎的想法，在之後將會轉化成較具集體性的國家觀。

這個時期的日本還是個仰賴農業的低度開發封建國家。儘管當時男孩的估算識字率高達70%，多數孩童其實都未受教育。很重要應予注意的是，由於兒童勞動力在農業經濟中有其價值，教育的立即金錢報酬極小，甚至呈負值。此外，明治政府此時的稅基極小，只能在初等教育上做出小額支出。建構並營運小學的重擔便落在各地社區的肩上。

不過日本人還是接受了初等教育的理想，力求突破障礙。圖一顯示四年初等教育的粗入學率從1870年的80%有所成長，到二十世紀的最初十年已近乎百分之百。粗入學率是入學學生佔所有學齡學生數的比率。粗入學率100%不必然意味所有學童都完成了初等教育，只是代表該年齡區段入學生的比率而已。實際上有許多學生在畢業前輟學，構成相當的學生「浪費」（Amano, 1997）。

第二階段

日本的教育發展在兩次世界大戰的期間進入新的階段。全民初等教育已然達成，初等和高等教育則進入擴張初期。從經濟發展的角度以觀，這是經濟的現代部門起飛的時期，其中包括配備西方科技和機械的製造部

¹ 引用自：MEXT 1972, p.124.

門，以及滿足其需求的金融部門和政府部門。

應予強調的是，這個時期的日本依然以全民初等教育為重點。初等教育雖在第一階段獲得長足的發展，其完成率卻到世紀之交才達到80%。為了提高初等教育完成率，政府採取了各種不同的措施，其中包括教學方法的改變、師資教育的改良、對低收入地區提供補助等。透過這些政策，初等教育完成率在1930年代達到百分之百。

Psacharopoulos的知名論證（1973）指出，初等教育的高投資報酬率意味著應優先投資於初等教育。日本經驗還可以對此有所補充。日本在這個時期採取政策來降低投資報酬率。當每個人都接受初等教育，受過初等教育者相對於其他人便沒有優勢可言。雇主於是無須增加成本便能利用初等教育所形成的能力。這一點成為之後經濟成長的基礎。

必須指出的是，明治政府並未投資於建立中等和高等教育。東京大學成立於明治十年（1877），有望成為引介西方文化及文明的焦點。之後則建立了各種型態的高等教育機構，以滿足不同的需求，提供專業的勞動力。明治維新的初期設立了各種中等學校，有的是高等教育的預科學校，有的訓練中階專業人才。

不過中等學校的數目要到第一次世界大戰之後才有長足的增加。到了1930年代末期，中等學校的參與率達到50%。但政府未見得是這個時期中等及高等教育擴張的推手，其動力毋寧是新興的經濟成長本身。

日本幾乎是從零開始發展現代工業，明治政府於是引進西方的科技和社會與物質資本。這創造出一個勞力密集、高效能的孤立現代部門，而多數的經濟活動都還是在農業、傳統製造業或傳統商業的環境下展開，導致現代部門與傳統部門間存在著鴻溝的二元結構，亦即一方面存在著配備現代科技的現代企業，規模多半較大，並附屬於商業集團，另一方面則有大量仰賴低工資勞動力的中小型企業，其中大型企業自然較中小型企業能夠提供較佳的工資與福利。

這使許多家庭都有超出義務初等教育的需求。同一時間，經濟成長也

使可以負擔中等教育的家庭數增加，這製造出政治壓力，促使地方政府設立中等學校。中等教育的學費多半相當高昂，也有許多私立中學仰賴學費收入而運作。

經濟發展與初等和高等教育的成長攜手並進。同樣的機制在戰後運作得更加全面，這將在第二節中討論。

二、投資於教育的策略

如何就上述的歷史過程得出日本的教育投資策略？與西方國家的經驗又有何不同？

圖2的橫座標代表人均GDP的估計值（以1965年物價的對數表示），縱座標則為初等及中等教育公共支出佔GDP的比例。空間中的每個點代表特定時間區段內一國兩個指數的結合，各點之間的連結路徑則代表此一向量的歷史路徑。圖上所示的是日本、英國和美國的估算值。

數字首先表明，日本在經濟成長的極早期便開始投資於初等教育，從當時低水平的人均GDP可以看出來。

1870年日本的人均GDP還在一千美元以下，投注於基礎教育的比例卻超過GDP的1%。經濟成長雖然到1910年都還很低，教育支出比例卻提高到2%。與此對照的是英國和美國，兩國的人均GDP在二十世紀初期都已經達到約四千美元，但初等教育支出還是維持在1%。

這表示第一階段的日本在初等教育上投注了超乎尋常的大量資源。當時的政府財政資源不足，卻成功的說服一般大眾相信個人成就和國家發展都仰賴於初等教育的提供。在此種意識形態之下，地方社區被認為有責任以地方性資源為基礎，負擔起建立並支持初等學校的重擔。

政府透過這樣的政策，成功的確立了大部分的初等教育，但經濟較為落後的地區卻沒能達到同樣的水準。現代經濟開始成長，國家也開始補助經濟落後地區，以強化師資及學校設施。透過這些措施，初等教育在1920

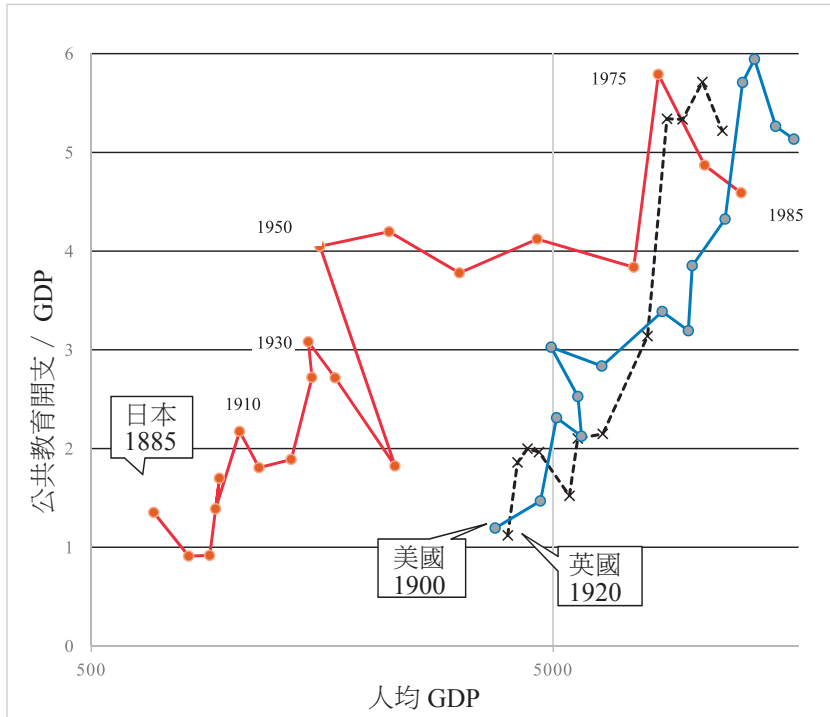


圖 2 日本、英國及美國初等及中等教育投資的歷史軌跡

資料來源：Ministry of Education, Science, Sports and Culture, Japan (MEXT) (1962). *Nihon no Seichou to Kyouiku [Japan's Growth and Education]*. Tokyo: Ministry of Education and Culture. Japan, Ministry of Education. U. S. Department of Commerce (1975). *Historical Statistics of the United States: Colonial Times to 1970*. Washington: U.S.G.P.O. Vaizey, John and Sheehan, John. (1968). *Resources for Education: An Economic Study of Education in the United Kingdom, 1920-1965*. London: George Allen and Unwin Ltd.

年代獲得全面普及。

全民都具有高度的基礎讀寫能力是動態經濟發展的基礎。企業在勞工的教育訓練上做了相當大的投資。學校體系內培養出來的高水準基本技能又與工作所需的特定知識和技能相結合。事實證明，這樣的組合在提升製造部門的技術水準和效能方面格外有效。

另外需予補充的是，圖2也顯示，二次世界大戰之後人均GDP開始快速成長，到最後三國的軌跡開始重疊。這個加速成長的過程便是下一節的探討主題。

貳、J模式

經濟成長和教育之間的關聯成形於兩次世界大戰的期間，其作用在二戰後達於極致，我稱此為「J模式」（J-mode）。

一、戰後改革與加速成長

在討論J模式的功能之前，必須先提及戰後日本的社會與經濟環境。

二戰末期的日本經濟已然殘破不堪，這同時也強迫日本制度的每個面向都必須做出變革，以便為發展的新機制奠下全新的基礎。普遍的土地改革侵蝕了戰前的階級結構，在廣大的多數人口中提高了社會地位上升的願望。

教育改革將雙軌結構轉換為單軌結構，打開了接受高等教育的機會。對初等教育的高度重視在戰後依然維持著。初中教育被納入義務教育，將最低在學年限提高至九年。國內各地區之間存在著其他經濟差異，中央政府因而必須對地方政府提供大量的補貼。

這些改革顯然都需要付出很大的努力。若非在1950年代的重大社會紛爭中相當程度的犧牲了在地社群，初中義務教育便無法付諸實行（Kaneko 2011）。儘管如此，經濟還是在1960年代開始成長，教育則與新的經濟發展密切相關。年輕人都能接受至少九年的學校教育，也為高中教育及最終的高等教育奠定了基礎。

二、J模式

透過戰後的經濟成長，以上所述的因素刺激產生了教育經濟獨特的連結型態，我稱之為「J模式」。其機制可以理解為政府、家庭及雇主三方的互動。

（一）家庭

去除了戰前的社會藩籬，戰後的教育改革開啟了中等教育和高等教育的契機，使人們有基礎可以期待接受更高的教育。

同一時間，戰前的雙重結構勞動市場則以一個略有不同的形式持續著。經濟擴張使得企業呈倍數成長，構成生產力和勞工福利的梯級。梯級在勞動市場的各個部門都很陡峭，為了躋身較高的階層，勞工便需要獲得更高的學歷。

這也讓家長有強烈的動機讓子女接受更高的教育。隨著1960年代經濟的快速成長，家庭收入水平也迅速攀升，達到每年十個百分點。這表示一個家庭若維持與前一年相同的消費水準，便能有多10%的儲蓄可以投入教育。多數人口於是都能夠負擔高中和高等教育，這使得高中和高等教育的需求呈爆炸性的成長。

從個別家庭及兒童的角度以觀，這也意味著競爭將會很激烈。從下文所討論的原因可以看出，梯級高端的企業偏好來自入學門檻較高學校的畢業生。在這個意義上而言，學生進入頂級學校就讀的事實便有著重要的價值。傳統上對教育的重視以及進入入學門檻較高的大學必須經過的激烈競爭，都令學生必須投注相當的努力以求精通掌握高中所學。

簡言之，這整個過程作為一個系統而運作，會提升學生熟習基礎學術能力的意願。重要的是，這個過程不只發生在來自中產階級的少數學童身上，對來自較低收入家庭的學童而言也是一樣。

（二）政府

戰後初期的1950年代，政府最大的目標在於完成戰後教育改革。但對高中和高等教育的需求在整個1950年代開始成長。起初政府採取的政策有限，將維持戰爭期間嚴重受損的學校品質列為最優先事項。

大眾對中高等教育的需求提高，在政治上產生了壓力，最後迫使教育部退讓而容許教育擴張。但政府財政資源不足，無法滿足高中學校和高等教育機構的需求，於是便允許私部門的擴張，或者許可新設私立院校，或者許可原有的教育機構提高入學人數。換句話說，就是讓私部門來滿足大眾的需求，其資金則主要來自學生家庭。

而在另一方面，政府將有限的財政資源導向國立教育機構，這些院校的大學生只佔全國的20%。工程及自然科學等科系在1960年代獲得大幅擴張，供應了發展初期機械和化學工業所必須的技術工程師。另外也應指出，國立大學的學費一直維持在一個低得多的水平，這形成一個強大的誘因，吸引優秀的高中畢業生進入國立大學的工程和自然科學科系就讀。

（三）產業界

快速普及的初中教育製造出一批具有基礎知識的年輕勞動力。發展的重點在1960年代轉移到重工業和製造業，以因應正在開展的出口市場。這需要大量的生產勞工，初中教育實際上便具有讓年輕的勞動力受招募進入產業中心的作用。

經濟成長也創造出對相關財金和商業產業的需求。經濟成長不只伴隨著製造業的成長，不同的商業及服務業領域也都跟著成長。高中畢業生主要受僱於這些部門。最後大學畢業生也為產業界所聘僱，不只是工程師、科學家等工作，也受僱從事其他白領工作。如上文所提及，高中及大學畢業生人數增加，滿足了這方面的需求。

從經濟成長的角度來看，對受過教育勞工的需求提高，最好能夠令其

供應也隨之提高，但究竟是否如此則不得而知，真實情況可能比這個複雜得多。

日本企業的實力和效率源於工作場所的知識共享。這些知識包含獨特的訊息及竅門，是可以在特定生產情境下提升效能的「隱性知識」（Tacit Knowledge）。在製造商品或提供勞務時，每個勞工都需要具備一定的知識和技能，而這一切未見得都獲得體系化或被以書面方式表達。組織在探討實際面對的問題時創生了這些知識，並且在工作場域分享和傳播，終生聘僱制度則是其基礎。

即便是大學畢業生，也不必然就具備大學內所教授的理論性專門知識。大學教育的要求是令學生在基礎學術能力上達至一定的高水準，以參與知識的創造並吸收已被創造的知識。這個在工作組織內積累分享、非正式的創造過程，被認為是高效能的關鍵因素。

從這個角度以觀，門檻較高的學校入學競爭激烈，構成了一個探查學術能力的精密體系。入學考試愈來愈繁複，雖然衡量的是入學時期而非畢業階段的學術能力。這讓企業得以妥切的辨別基礎能力，一般認為此等基礎能力是知識與技得以在工作場域內形成的基礎。

三、J模式作為發展策略

以上的論證指出，J模式是一種以獨特方式連結起教育和經濟的機制。

首先，J模式是動員財金資源進入教育體系的模式。在一段時間的經濟快速成長之後，相對於GNP的成長，政府收益的成長有限，盈餘則投資於促進更進一步的經濟發展。正如上文所指出的，政府將有限的資源投注於提升初等教育，並提高較高教育機構的容納力，令其得以訓練出經濟成長所需的策略性人力。此外的教育機會其資金則由學生家庭所承擔。

其次，J模式創造出持續受教育的願望，也在年輕人間創造出學習的

欲望。學習的要求及其獎勵展現在高中及更高等教育機構的入學考試上。這成了一個簡單有力的原因，使年輕人有意願去學習學術科目，獲取核心學術能力。包括最近的PISA（OECD, 2017）在內，有許多測驗學童學術能力的計劃，而日本學童的表現成就都很高。另一個OECD國際計畫測驗成人的知識和技能，也顯示日本人具有的高能力（OECD, 2016, 2018）。

第三，競爭激烈的入學考試是一個鑑別青年人才的方法。此外，核心能力作為副產品而創造出來之後，又提供了一個基礎，可進一步投資於工作上的人力資源，這在日本企業的特定情境下有助於形成生產效能。

圍繞著J模式的整個社會制度確保了一種特定的社會正義型態，這一點也很重要。人口中有很大一部分被容許參與入學考試的競爭，而事實上也確實參與了。至少入學考試的競爭在技術上是公平的。考慮到家庭收入的成長，就多數人口而言，經濟因素並沒有對多數人構成實質的偏見。

然而這個機制給自己製造出麻煩，這一點到了1980年代變得愈加清楚。

參、下一階段的挑戰

J模式在戰後的經濟成長中起作用，但到了二十世紀尾聲，隨著日本經濟遇上前所未見的困難，這個機制也開始出現重大問題。

一、J模式的後果

J模式的負面影響之一在於在學童早年便施以過度的壓力。就學生的擇取及進入高門檻教育機構的報酬而言，高等教育機構之間存在著高度差異，進入高門檻機構的競爭也因此愈加劇烈。入學考試的競爭性愈高，其測驗先天能力的準確度也就愈高。雇主很清楚哪些學校對入學能力的要求較高，而這對招募人才而言是簡單可靠的資訊。學校體系內的階層於是與

產業結構內的階層緊密連結。這種對應關係使得這個結構具有自食的傾向。

英國社會學家R. P. Dore稱此為「文憑病」（Diploma Disease；Dore, 1976）。多數日本人對此都有一個模糊的印象，可用幾個關鍵字表達，其中也包括「學歷主義」（Gakureki-Shugi, academic credentialism）一詞。有論證認為高等教育已發展到超乎經濟所需的程度。高等教育畢業生從事不需接受高等教育便能勝任的工作，他們取代了高中畢業生，單純只是因為雇主有此偏好。這樣的擴張一旦開始，便藉由己身的動能而持續。

這樣的過程對學童來說無疑具有高度的壓迫性。許多批評家在這種自我強化的過程中看出社會疾病的徵兆。高中生因為大學入學考試而備受壓力，小學生則為了進入較好的初中或高中而承受入學考試的壓力。整個入學考試制度構成了一種「考試煉獄」，在成人身上廣泛引發出罪咎感。

被視為社會疾病徵兆的教育於是必須在政治上獲得處理。1980年代早期，政策在壓力下做出高中課程和大學入學考試多元化的改變。課程要求也在國家教育標準（National Education Standards）當中作出規定。這些變革做成之時，正當十八歲人口進入長期衰退的時期，於是入學考試的壓力在部分十八歲人口身上失去影響力，但J模式的基本結構並未改變。

二、變遷中的環境

自1990年代起，社會與經濟環境也開始出現劇烈的變化。

（一）價值和舉止的變化

最根本的變化來自於公眾價值的變動。在經濟成長時期，典型的家庭目標在於達致中產階級的生活水準。多數的父母都想進入高中和大學，但卻無法實現。那時生涯目標很清楚，達成這些目標的先決條件便是教育文憑。父母希望子女能夠進入導向較佳生活的軌道，而這以教育為起步之

階。父母說服女子相信教育的重要性，子女則接受這樣的訊息，遵循競爭規則，在人生早期便開始為未來做準備。

當經濟成長到一定程度，多數人都能夠享有典型中產階級的生活水準，這樣的說服邏輯便失其根據。

同一時間，也可以預期日本的人口將產生劇烈的變化。生育率在1980年代開始出現顯著的衰退，導致1990年代晚期至二十一世紀的頭十年間大學入學人口縮減。十八歲人口的數從1990年的超過兩億人，減少到2020年預估約為一億一千萬人。由於高等教育的招生能力擴大，高等教育已經供過於求，許多非選擇性教育機構於是不再透過入學考試來篩選學生。

選擇性較高（入學門檻較高）的機構入學競爭依舊，卻還是失其影響。許多公私立大學為因應環境的變化，如今開始減少入學考試的測驗科目。

（二）經濟環境

同一時間，隨著新一代科技密集產品與產品的到來、產品和資本的全球流動，工業結構和專業結構也都產生變化。帶領日本經濟成長的是重工業、化學工業與機械工業領域的大型企業。由於資訊處理技術和生物技術的興起，創新產品如今是由相對較小的創投資金而非大型製造業所開發。高創業高淘汰的商業模式需要的是受過教育、能夠接受高風險高報酬的員工，也不僅只受僱於大型企業。

這些改變影響著工業化國家的經濟，但日本格外受到衝擊。日本企業的人力資本形成模式和J模式在提升經濟產能方面一直都很有效，如今面臨著正在浮現的經濟競爭浪潮，突然間變得無關宏旨了。

在新興競爭當中，競爭力來自於找到科技與需求結合的新方式。企業必須經常做出組織調整，其中也包括高度的勞動力流動。於是工作所需的知識和技能變得愈來愈多元，也很快就會過時。為了讓員工具備這些技能與知識，企業不能再仰賴形成於工作場域的既存知識和技能，必須引進外

部資源來進行內部培訓。同時員工為了獲得新的工作機會，必須要獲得特定的技能。簡言之，員工必須不斷的在既存的組織領域之外獲得特定知識。

從這個角度來看，J模式有著很大的限制。由於以既存的組織為基礎，J模式便無力產生並傳播該組織所不必須的知識，也很難引進組織外部的創新。當科技或需求將產生相當的變化，這個問題便成了關鍵劣勢。

此外，全球性的經濟競爭使許多企業必須為了生存和短期獲益而掙扎，必須以最快速度對市場和科技的變化作出回應。這使得企業愈來愈難維持終生聘僱制度。企業在試圖維持核心經理人員終生職的同時，便必須容許愈來愈大比例的白領人員流動。大學畢業不代表一定能找到工作。

這一切迭加起來，損壞了教育體系激勵學童、在學童身上灌輸特定技能與知識的能力。簡言之，當經濟成長愈加仰賴於技術的非線性成長，當新產品在既存企業之外開發出來，日本以既存組織為基礎的人力資本形成系統便失其效用。

三、挑戰

以上的討論勾勒出連結教育與經濟的J模式，過去一度運作良好，帶來經濟效能，如今則面臨強大的變化。這個模式在由於過去成功的創造了財富，如今結構基礎已不再穩固，此外也在因應知識社會的需求方面存在嚴重的問題。日本要如何因應這樣的挑戰？

（一）創造學習

首要之務在於為了因應新世紀的來臨，在年輕人當中創造出一種新的學習型態。上文已經提及入學考試已不再是學習的動機。而同一時間，教科書裡程式化呈現的科目知識在如今多元流動的社會裡也已不足夠。年輕人必須具備探查陌生環境、做出行動判斷的能力。我們可以將此種能力稱

為「一般能力」（generic competence）。

最新修訂的國家課程標準（National Standard for Curriculum）就是為了滿足初等及中等教育的這項需求而訂定。過去曾有普及化「以學生為中心的教學」、「參與式教學」及其他教學方式的作為，其成果則有待觀察。

然而我認為存在於高等教育的問題還更為重大。基於上文所敘及的原因，日本的高等教育機構並未能真正成功誘發學生學習。針對學生學習情況所做的實證研究顯示，今日這個問題依然存在。為了矯正這個問題，必須要做出許多不同的努力（Kaneko, 2013a）。

（二）關聯性

其次也必須重新檢視教育和工作之間的關聯。這個問題主要存在於高等教育層面。上文提及日本企業並不期望從大學新聘的人力具有特定性的知識，因此教育和工作之間的關聯便顯得有些模糊，只有健康相關專業例外。同時工作場域內分享知識和技能也失去基礎。那麼如何才能在教育和工作之間形成新的關聯？

再一次，這個問題似乎沒有立即的解答。我們或許可以說，至少這個關聯應該具有多元性。有些學校可以集中提供某些特定的專業知識，其他學校則可以提供強化一般能力為的教育計畫；可以有更多提供給成人和在職學生的課程。

教育體系（尤其是高等教育）必須要適應多樣化的功能，同時還要維持其作為一個系統的完整。社會必須再一次摸索未來的方向。

（三）資源動員

教育政策與資金是另一個面向。上文提到日本中等和高等教育的擴張是因為學生家庭做出相當的投入。只要家庭收入持續成長，這樣的情況就能夠維持。成長率在1990年代開始減緩之後，家庭負擔此種成本的能力也

降低了。倚靠國家貸款就讀大學的比例直到1990年都還在10%左右徘徊，之後便穩定成長，到了2010年已將近50%。

同時，教育發展的焦點也必須從量的擴張轉變為質的提升，尤以高等教育為然。這自然會需要許多資源。然而從目前財政緊縮的情況來看，國家為此投入資源的可能並不高。然而過去日本的經驗和其他國家的經驗都指出，市場機制並不適合用以刺激質的提升。

這又再度導致問題超出了本文範圍的窘境。

教育和經濟之間的關係在日本經濟成長的過程中幾經轉變，而我們並不清楚目前的轉變最終將會導致何種結果。然而回顧過去可見來路不易，也是這樣的信念支持我們繼續為建構教育和經濟之間的關聯而努力。

