

The Third Annual Michio Nagai Memorial Lecture

*The Future of  
Higher Education in Japan*

Dr. Akito Arima

former Minister of Education of Japan and  
former President of the University of Tokyo



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UN House, Tokyo, 12 December 2002



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# *Foreword*

I am very pleased to introduce this lecture by Dr. Akito Arima, former Minister of Education of Japan and former President of the University of Tokyo. The theme of Dr. Arima's lecture, "The Future of Higher Education in Japan," is currently a central issue in Japan and in the rest of the world.

Higher education, indeed, has a special obligation to promote a worldwide "culture of peace, tolerance and non-violence," while preparing students for their future in a highly connected, interlinked, globalized world. Academic freedom and university autonomy, after all, do not only create opportunities and capabilities, but also a moral obligation. All universities, without exception, are in an excellent position to promote peace and mutual understanding through internationalization. Meaningful internationalization, however, cannot be based on student mobility only; it is crucial to extend the activities to the exchange of teachers and researchers, and that all go willing to learn from the others. Ultimately, meaningful internationalization will depend on the quality of the dialogue between the two parties and the joint projects in which they engage. In this way, it will be possible to prepare new generations to contribute to a better life in a safer world for all.

In his address, Dr. Arima raises the issue of, and the need to open a debate on, the "*appropriate scale of higher education*" in Japan and other countries. The question of how many young people should proceed to higher education may be difficult to answer; nevertheless, Dr. Arima shows that it is possible to shed some light on this topic. As he writes, the scale of university education is heavily dependent on the ability of a country, society or economic power to support higher education. In his lecture, Dr. Arima also highlights the need to re-think the purpose of higher education, taking into account the needs of our current society. Indeed, the popularization of the university was already seriously affecting universities in Japan in the mid-seventies, when it inspired Dr. Nagai's thought on the mission of the university. In his lecture, Dr. Arima shows how Dr. Nagai's analysis still is relevant: technical vocational education, general education and the search for "truth," as they were identified by Dr. Nagai, remain the three purposes and objectives of education. Furthermore, technical vocational education fulfils the practical role of a university whereas general education serves to attain its idealist function, and the search for the "truth" expresses a university's responsibility to carry out research.

In his lecture, Dr. Arima presents some of the major characteristics of present-day Japanese universities and raises the challenge and necessity to conduct basic research in all fields, ranging from the natural sciences to human and social sciences. In his opinion, Japanese universities – and Japan as a whole – should pay more attention to research, be it in the fields of pure scientific research or applied scientific research. In his text, Dr. Arima also draws attention to the importance of the independence and autonomy of universities.

Professor Akito Arima is a world-renowned nuclear physicist, and currently Member of the Japanese House of Councillors. He has held many important scientific and

government positions in Japan, including Minister of State for Science and Technology; Minister of Education, Science, Sports and Culture; Deputy Chairman, Council for Relocation of the Diet; Member of the Administrative Reform Council; Chairman of the Central Council for Education; and Scientific Counselor, Ministry of Education. Notably, he was also President of The Institute of Physical and Chemical Research (RIKEN) from 1993–1998. Dr. Arima has spent considerable time in academia in both teaching and administrative positions which include, but are not limited to, President, University of Tokyo; Dean of the Faculty of Science, University of Tokyo; Director of Computer Center, University of Tokyo; and Professor, State University of New York at Stony Brook. During his long and distinguished career, Dr. Arima has received numerous awards – including the Bonner Prize from the American Physical Society and The Japan Academy Prize – and more than 10 honorary degrees from universities around the world. He is also an accomplished poet, and received the Prize of the Haiku Society in 1988. Dr. Arima completed his undergraduate degree, graduate degree in Physics, and Doctor of Science degree at the University of Tokyo. Dr. Arima is at once a great intellect and a deeply human, humble person.

To conclude, just a few words about the Michio Nagai Memorial Lecture: To celebrate the 25th anniversary of the initiation of activities of the United Nations University (UNU), a symposium was organized in October 2000. The central event was the inaugural Michio Nagai Lecture, delivered by Professor Justin Thorens (former Rector of the University of Geneva and former Chair of the UNU Council). The Michio Nagai Lecture was named after the former Japanese Minister of Education, Science and Culture who was one of the leading figures behind the Government of Japan's decision to invite UNU to locate its headquarters in Tokyo, Japan. Indeed, Dr. Nagai's editorials in the *Asahi Shimbun* and his leadership as the Minister of Education had a tremendous impact in advancing the cause of UNU. Dr. Nagai also served as an extremely effective Senior Adviser to the UNU Rector for many years.

Since the year 2000, the annual Michio Nagai Memorial Lecture serves as an annual forum for eminent members of the international community to speak on issues confronting the United Nations and its Member States. It was a privilege to have Dr. Arima at the United Nations University for the third Michio Nagai Memorial Lecture, and certainly his message demands an ever-increasing attention to enhancing higher education.

Hans van Ginkel  
Rector  
The United Nations University



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# *The Future of Higher Education in Japan*\*

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Dr. Akito Arima

former Minister of Education of Japan and former President of the University of Tokyo

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*The Third Annual Michio Nagai Memorial Lecture*

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Thursday, 12 December 2002

Thank you very much for your kind invitation to the Michio Nagai Memorial Lecture and for offering me the opportunity to present my views.

I would like to begin my talk with a few personal experiences. When looking back over my life, I think professor Michio Nagai was my esteemed predecessor in four ways. First, we attended the same secondary school, the private Musashi Secondary School in Nerima Ward, Tokyo. This was a so-called seven-year secondary school, since it compressed the usual eight years of secondary education into seven. The “5-3” school system, consisting of five years of lower secondary education and three years of upper secondary education, was endorsed until 1949 under the old system of education. After completing four years of lower secondary education at the Hamamatsu Middle School, I was admitted to the Musashi Secondary School without having to finish the fifth year of lower secondary education first. For Professor Nagai and me, the education we received at the Musashi Secondary School became our reference point as to what constitutes a high-quality general education. From professor Nagai’s description of his views on the university, in which he attributes much value to the concept of general education, it is clear that he was of the same opinion.

Getting back to my own experiences, I was able to finish my middle school in four years and, upon entering the Musashi Secondary School, I did not have to spend a fifth year in lower secondary education.

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\* This text is a translation of Dr. Arima’s lecture, which was delivered in Japanese.

Nevertheless, it was here that I experienced the effectiveness of a coherent, single-track education. If I recall correctly, the first cycle at the Musashi Secondary School was called “jinjo elementary education,” but students who had completed this cycle were not at all behind their counterparts who had gone through five years of education at a different school; one might even say they were ahead.

Based on my personal experience, I later introduced a system in public secondary schools that enabled students to skip the third year of secondary education. This can be regarded as a major breakthrough running counter to the age regulations of Japan’s academic credential-oriented society, and paving the way for the introduction of a coherent single-track school system in which lower and upper secondary education are integrated in the same school, public or private.

The second way is that professor Michio Nagai and I both devoted our lives to education and research at the university: professor Nagai graduated from the Faculty of Literature and specialized in Sociology of Education, and I graduated from the Faculty of Science with a specialization in Physics. Hence, there are certain aspects in the publications of professor Nagai, including *The Japanese University* and *The Potentiality of the University*, which are particularly poignant since they are written from the viewpoint of an academic and an insider who dedicated his life to the university. Moreover, professor Nagai wrote these publications with such an open mind, partly because of his experience as a member of the editorial board of the Asahi Shimbun Press, that they still offer an abundance of valuable ideas and suggestions, more than 30 years after their initial compilation.

The third way is that professor Michio Nagai studied at Ohio State University in the United States, where he also received his Ph.D. There, he was able to learn and experience firsthand the exceptional qualities of an American university education, particularly at the graduate level. I also studied in the United States, where I held a research position at the Argonne National Laboratory in the suburbs of Chicago. Subsequently, I taught at various universities, and I served as a professor at the Stony Brook University of State University of New York for several years. This is how I became acquainted with the zeal for education at American universities as well as the attention given to pedagogy. I also became more conscious of the efforts needed to obtain research funding as well as the rigorous evaluation system. With regard to these issues, professor Nagai



and I were both taken aback by the exceptional qualities of American university education, especially the general “liberal arts and science” curriculum, and the education offered at American graduate schools. We both recognized that Japanese universities needed some changes.

The fourth way is that professor Michio Nagai served as Minister of Education from 1974 to 1976. I also took up this position, from 1998 to 1999. In this responsibility, professor Nagai and I were both compelled to cope with issues that were not only confined to universities as such but also related to the overall administration of education and research. For that reason, I would still like to be able to visit professor Nagai to consult with him on various issues ranging from university- and education-related matters to administrative concerns. To my deepest regret, this is no longer possible, since professor Michio Nagai passed away in 2000.

Today, I will mention a few problems that professor Michio Nagai passionately pointed out in his book *The Japanese University*, in which he laments the status quo and reveals his hopes for the future. I will consider these issues from the established point of view that Japanese national universities will develop into corporate entities.

First, let me express my admiration that professor Nagai’s analysis and criticism of Japanese universities, as well as his suggested strategies for improvement, are still up-to-date after 30 years. This, however, would not have been an encouraging thought for professor Nagai, since it implies that Japanese universities, despite his call for improvements, have essentially remained unchanged over the past three decades. The aspect that has probably improved most is the funding of research, including the expense of conducting scientific research. Research funding has expanded vastly since the enactment of the Science and Technology Basic Law in 1995. (See figure 1.)

A major point of concern for Japanese universities is the sharp decline of eighteen-year-olds. It is, therefore, necessary to open a national debate about the appropriate scale of higher education in Japan. One should realize that problems relating to the scale and popularization of higher education are not restricted to Japan; various countries around the world are facing these problems. Keeping this in mind, I will now present my views concerning the issue of the scale of higher education.

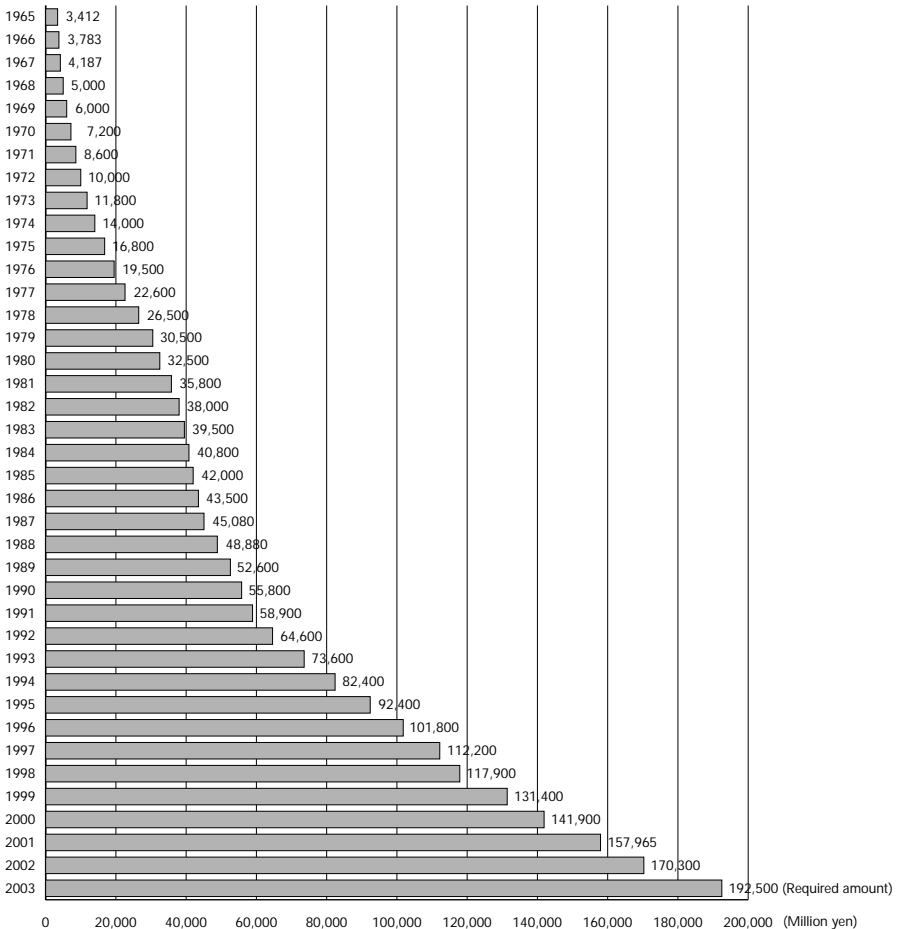


Figure 1. Projected trend of subsidies for scientific research

## The scale of higher education

The question of how many young people should proceed to higher education may be difficult to answer from a purely philosophical perspective. Nevertheless, it is possible to shed some light on this question by assessing external conditions. The scale of university education, for example, is heavily dependent on the ability of a country, society or economic power to support higher education.

In Western Europe and the United States, a relatively high percentage of the GDP (Gross Domestic Product) is spent on higher education. In Japan, this figure is almost mysteriously low. As illustrated by the table (see figure 2), the expenditure on higher education in terms of GDP is 0.4 per cent for Japan, whereas it amounts to 1.0 per cent for the United States.

Figure 2. Education expenditure in relation to Gross Domestic Product (GDP) (1998)  
«Higher Education»

<i>Country name</i>	<i>Public expenditure</i>	<i>Private expenditure</i>	<i>Total</i>
Japan	0.43	0.60	1.02
Republic of Korea	0.44	2.07	2.51
Italy	0.68	0.16	0.84
Czech Republic	0.76	0.12	0.88
Mexico	0.78	0.11	0.89
Hungary	0.80	0.21	1.01
Turkey	0.81	0.03	0.84
Belgium (Dutch-speaking region)	0.83	m	0.83
United Kingdom	0.83	0.28	1.11
Spain	0.84	0.27	1.11
Belgium	0.91	m	0.91
Portugal	0.96	0.08	1.04
Germany	0.97	0.08	1.04
France	1.01	0.12	1.13
Greece	1.04	0.17	1.21
New Zealand	1.06	m	m
USA	1.07	1.22	2.29
Ireland	1.08	0.30	1.38
Australia	1.09	0.51	1.59
Switzerland	1.11	n	1.11
The Netherlands	1.15	0.03	1.18
Poland	1.16	m	m
Norway	1.42	0.09	1.51
Austria	1.44	0.02	1.46
Denmark	1.49	0.04	1.53
Sweden	1.49	0.17	1.67
Canada	1.53	0.32	1.85
Finland	1.68	x	1.67
Iceland	1.74	0.04	1.78
Luxembourg	m	m	m
Slovakia	m	m	m
<i>OECD average</i>	0.93	0.67	1.59

Note: 1. Ratio of public expenditures for education in increasing order of magnitude  
2. Significance of symbols: m: unknown n: 0 coefficient x: included in other section

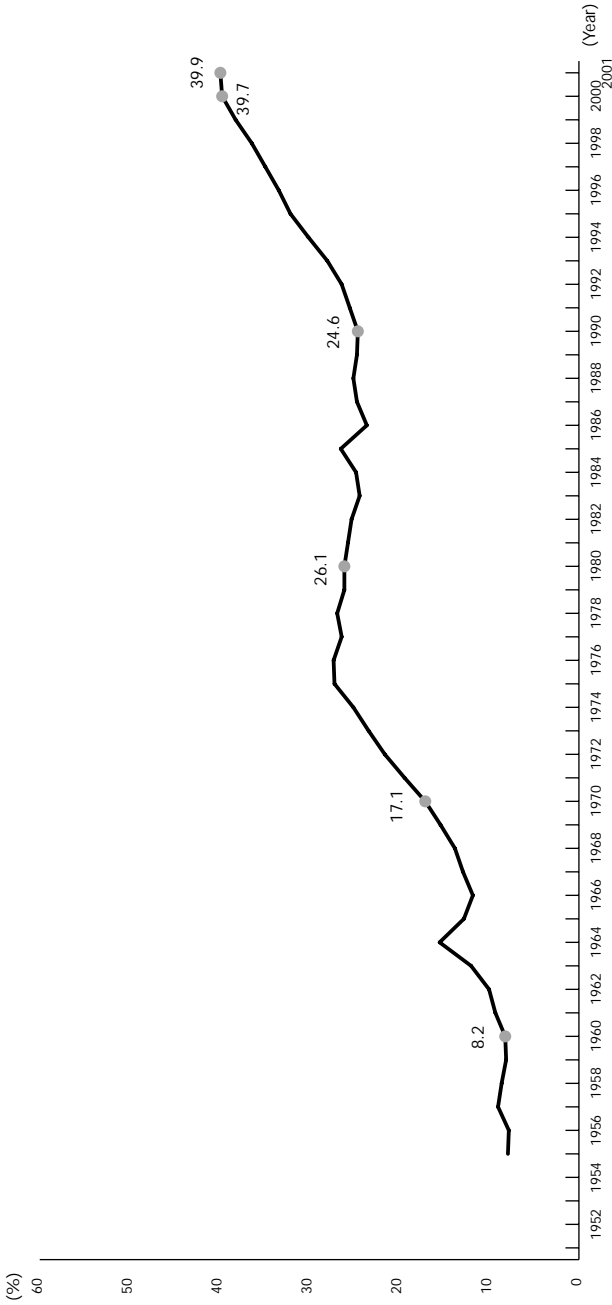
Source: *Education at a Glance*, OECD, 2001

On the other hand, the proportion of people who enjoy higher education by attending a 4-year university is high in Japan – second after the United States. It is as high as 40 per cent for eighteen-year-olds. (See figure 3.)

In this respect, one should note the contradiction between the high proportion of people who move on to higher education, and the low public expenditure ratio. Although public expenditures for national public universities in Japan are low, and the expenditure rates tend to be even lower for private universities, more than 75 per cent of students nevertheless attend a private university. This demonstrates that university education in Japan is seriously under-funded. This represents a serious problem facing higher education in Japan. However, as I have mentioned, Japan still does not recognize this: up until now, no attempt has been made to increase public expenditures even though Japan maintains a policy of increasing the number of university students.

With regard to the scale of universities, it is necessary to consider how many university graduates are required by a society, especially from an economic point of view. In this respect, however, there may not be a coherent point of view in a country or society. Opinions may range from the need to raise an elite to the need for technical experts and as well as generalists who have received a broad general education. This is why we need to consider what kind of education and research universities should strive to provide. I will come back to this issue later.

Another point to consider, especially in the case of Japan, is that birth rates are not only extremely low, but also that the average age at which women are giving birth is becoming higher, partly as a result of improvements in the healthcare sector. For instance, while there were 2 million eighteen-year-olds in 1992, at present their number is only 1.5 million, and this number is expected to decline to 1.2 million by 2010, and even more so beyond 2010. This is why efforts should have been made to reduce the number of university students after 1992 in order to retain the quality of university students. Instead, however, an increase in the number of students has taken place. The current number of students in public and private universities is 114 per cent that of 1992; this in spite of the fact that, taking into account the drop in the number of eighteen-year-olds from 2 million to 1.5 million, it should have been only 75 per cent. Consequently, considering only education at Japanese universities (four-year colleges), the ratio of students proceeding to higher education remains high at 40 per cent.



Note: Enrolment rates for (undergraduate) universities (including high school students who are preparing for another chance to enter a university): the ratio of applicants for undergraduate universities (including high school students who are preparing for another chance to enter university) compared with the number of lower secondary school graduates three years earlier

(Data) Examination of school standards

Figure 3. Progression of enrolment rates for (undergraduate) universities (including high school students who are preparing for another chance to enter a university)

However, one cannot say that the number of students needs to decline simply because there has been a drop in the number of eighteen-year-olds. One also needs to consider how many university graduates are actually needed by industry, and society in general. Consequently, it becomes necessary to think about the purpose of higher education and the needs of society. The decline in the number of eighteen-year-olds is a phenomenon that was not present at the time of professor Michio Nagai, and therefore was not a matter of concern to university analysts at his time. In fact, the number of eighteen-year-olds was rising then. Even so, the phenomenon of popularization of the university was already seriously affecting universities in Japan, and it was this issue which inspired professor Nagai to discuss the mission of the university in terms of three major objectives.

## The mission of the university

The mission of the university is often defined as the advancement, and development of the wisdom, of humankind. A prerequisite for the advancement of wisdom is education, which can be divided into two main categories: technical vocational education and general (liberal arts and science) education. Moving on to the development of wisdom, the main mission of the university is to search for the “truth.” As maintained by professor Nagai, technical vocational education fulfilled the practical role of a university whereas general education served to attain its idealist function. In his opinion, the search for the “truth” expresses a university’s characteristic to perform research. I believe he made a striking analysis.

Before delving further into the three aspects of education, I would like to consider the views of professor Martin Trow, who is well known among university analysts. Professor Trow suggests a way to classify the higher education system in a country based on its enrolment ratio at a certain age level. According to professor Trow, a rate below 15 per cent marks the elite stage of higher education, a rate between 15 per cent and 50 per cent marks the stage of higher education popularization, and a rate over 50 per cent marks the stage of universal higher education. In this case, higher education refers to both universities and junior colleges. Although the range from 15 per cent to 50 per cent is rather broad, this range is collectively classified as education popularization. With the major exception being the People’s Republic of China, almost all advanced nations have already reached this

stage. The United States and Japan have entered the stage of universal higher education.

I believe that the three above-mentioned purposes of education – technical vocational education, general education and the search for “truth” – can easily coexist in the elite stage of education, which is marked by a ratio of people who proceed to higher education below 15 per cent. Moreover, I believe this stage can also be supportive of the principle held by Dr. Alexander von Humboldt, that university professors should first conduct research, which they can subsequently reflect in their education. Even today, this idea holds sway, since university professors in many countries around the world, including the United States and Japan, still consider themselves as researchers first of all, and pass the knowledge gained from this research to their students. However, I would like to point out that this very idea took root in the elite stage of education, and that it currently applies only to a very limited number of universities and university professors. In fact, at the time when professor Nagai wrote his book *The Japanese University* in the 1970s, the ratio of students proceeding to higher education by attending a four-year university stood at 17 per cent. This ratio indicates that this was a turning point from the elite stage of higher education to the stage of higher education popularization.

I will now take another look at the three-fold mission of the university, this time in relation to the stage of higher education popularization. I will do this by taking a slightly more detailed approach to the degree of university popularization. For instance, when the university enrolment ratio ranges from 20 per cent to 25 per cent – ratios which I experienced myself – I believe that the majority of four-year universities can still attain the three-fold mission of the university.

Critics often lament that, instead of developing their own individual characteristics, all Japanese public universities aspire to become a “little Tokyo University” or “little Kyoto University” and all private universities aspire to become a “little Waseda University” or “little Keio University.” When the enrolment rate is below 25 per cent, this criticism is not necessarily appropriate. When the enrolment ratio exceeds 25 per cent, however, I believe it is no longer possible for all universities to attain the three-fold mission of the university in the same way. Most universities, for example, will not be able to fulfill the research mission. Research-oriented universities, which have strong graduate schools, are an exception; there, the average enrolment ratio ranges from 15 per cent to 20 per cent. In my

opinion, a substantial number of universities will therefore have to focus on education instead. In other words, when the enrolment ratio reaches about 25 per cent, a separation of the two missions – research and education – is brought about.

When the enrolment ratio expands even further – for instance, when it surpasses 30 per cent – it will be impossible for all universities to offer the same kind and attain the same level of education, be it general education, specialized education or even technical vocational education.

## Technical vocational education

In Japan, as in many other countries, the enrolment ratio for middle school (that is, upper secondary school) ranges from 90 per cent to 100 per cent. As a result, the quality of students who have gone through secondary education has become increasingly diversified, and the disparity in attained knowledge level has become more pronounced. Furthermore, there has been a serious decline in the popularity of vocational secondary education in Japan. Whereas 40 per cent of all secondary school students attended vocational schools in the past, this ratio has gone down to 22 per cent. (See figure 4.)

It follows that universities should offer various vocational education levels. Many universities have to take over the educative responsibility of vocational secondary schools. Since these universities usually limit themselves to offering only the minimum of basic and preparatory training needed for a vocational education, it will be necessary to offer sufficient opportunities for internships. This also implies that these universities should leave general education to the realms of lifelong education.

Universities with a slightly higher level of technical vocational education should first achieve the goal of basic education, followed by general and liberal arts education.

## General education

Turning to general education, it is clear that the elite should establish a decent general education system in order to raise excellent technical professionals and outstanding generalists. Thirty years ago, in 1970,



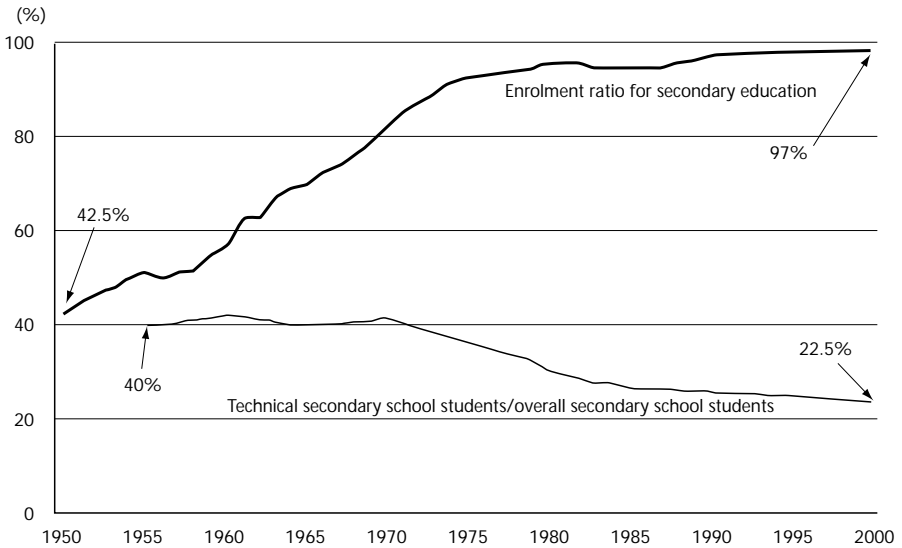
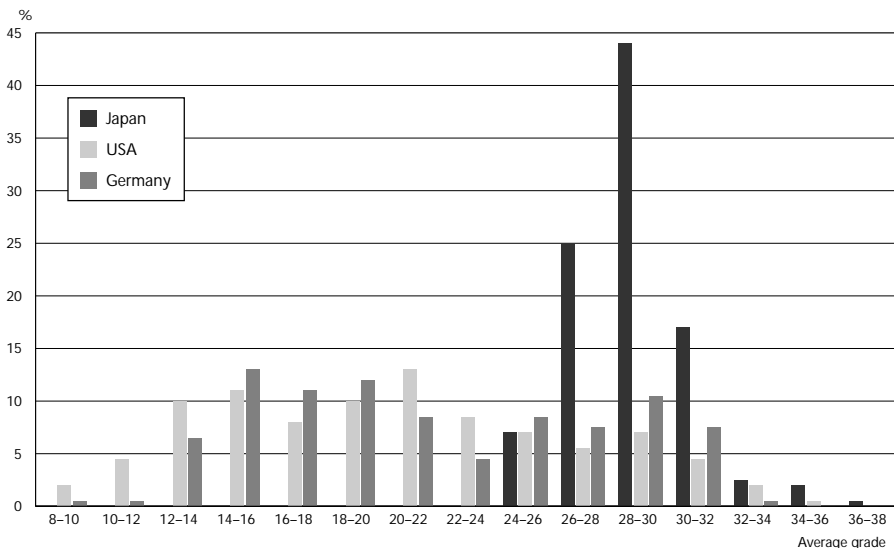


Figure 4. Progression of enrolment rates for secondary education and distribution of technical secondary school students

professor Michio Nagai also lamented the neglect of general education at Japanese universities.

In the United States on the other hand, much attention is given to “liberal arts and science” education. This can be partly explained by the fact that it is seen as a way to correct various disparities, such as the divergence between the educational achievements of individual students caused by the enormous diversification in elementary and secondary education. I will illustrate this by referring to the 1999 TIMSS (the Third International Mathematics and Science Study, now called Trends in International Mathematics and Science Study) assessment, carried out by the International Association for the Evaluation of Educational Achievement. (See figure 5.)

The distribution of the percentage of correct answers to the same mathematical problem across a number of schools for second-year junior high school students reveals that grades were very diversified for countries such as the United States and Germany. In the case of Japan, however, this distribution was extremely narrow. This shows that most children in Japan have more or less the same educational level, at least until lower secondary



Source: Investigation findings on international mathematics and science education

Figure 5. TIMSS distribution of grades for major curriculum subjects

school.

In this context, a low enrolment ratio of students proceeding to higher education before 1954 can be explained by the fact that there is little preparation for university education. For instance, there were not many review lessons of secondary school level in universities. When the new system of education was inaugurated in 1954, the ratio of students who continued to higher education was not even 10 per cent. Therefore, preparatory education was not considered to be necessary for Japanese universities. As a result, the attempt to establish a faculty of general education occurred rather unsuccessfully at most universities. Nevertheless, many universities in Japan maintained this kind of general education, which had taken root under the old system of education, until 1990. This type of education was not popular among students and displeased many among the teaching staff. After introduction of the amendments to the Standards for the Establishment of Universities in 1991, many universities abolished their faculty of general education. Although the introduction of most of the amendments to the Standards for the Establishment of Universities was appropriate, the fact that the abolishment of faculties of general education

was left to the free judgment of each university not only caused many misunderstandings, but can be considered a failure for higher education in Japan.

There are various reasons why this can be considered a failure. First, there was a steep rise in the number of students proceeding to secondary school after 1970 in Japan. After 1990, this ratio reached nearly 100 per cent. In order to respond to this situation, an enormous diversification of the education at secondary schools has taken place, in particular in terms of their curriculums. Hence, it has become necessary to develop both specialized and general education at Japanese universities. Another reason for considering this a failure is that it was well known in the 1990s that there would be a serious decline in eighteen-year-olds.

In 1992, the number of eighteen-year-olds was 2.05 million. This number dropped to 1.5 million in 2000, and is expected to decrease to 1.2 million by 2010. Each university, therefore, should have cut its number of students by from 25 per cent to 40 per cent. However, it is difficult to reverse the increasing trend. A steady increase in the percentage of students moving on to higher education inevitably will also result in a decline in the quality of these students. Yet, even though there was a growing and irreversible need to conduct both fundamental technical and general education, the faculties of general education were abolished. At the University of Tokyo, we have barely been able to keep our faculty of general education alive.

The reconstruction of general education at Japanese universities is, therefore, a very serious issue. The concern of professor Michio Nagai has become even more relevant today.

## Characteristics of Japanese universities

I will now proceed by pointing out a few characteristics of Japanese universities. First, much emphasis is given to practical science. The University of Tokyo was the first university of Japan, established in 1877. Many people believe the university was set up after the European example. However, I think this applies only to the university as it was at its inception, when it consisted of four faculties: law, medicine, literature and natural sciences. In 1886, a merger between The University of Tokyo and the Imperial College of Engineering resulted in a strong faculty of engineering.

A few years later, a faculty of agriculture was also established. Consequently, a new organizational structure consisting of six faculties was adopted in the 1900s. These were the faculties of law, medicine, literature, natural sciences, engineering and agriculture. Hereby, much attention was given to practical science under the influence of the American Morrill Act. This, I believe, is why Japanese universities share characteristics of both European universities and American state universities.

The Imperial University Ordinance of 1886, which gave The University of Tokyo the status of Imperial University, states: “the Imperial University shall have as its purpose the instruction of academic skills such as accords with the cardinal principles of the state and research into their deepest mysteries.” From this statement, it becomes clear that the emphasis on practical science rather than basic research dates back to the foundation of universities in Japan. Universities thus served to support a practical scientific training in the immediate interest of the state. This also explains why the faculty of engineering and the faculty of agriculture were introduced into the core structure of general universities from the very beginning.

The following chart (see figure 6) shows an international comparison of present-day rates of students per academic field. The proportion of students who opt for engineering is very high in Japan, compared with European and even American universities.

This has greatly contributed to the steep rise of Japan as an economic and technological power. However, in order to keep pace with the continuous development of other advanced countries, it is also necessary to conduct basic research in all fields, ranging from natural sciences to human and social sciences. In my opinion, this is a very important role of universities, particularly research-oriented universities. Basic scientific research is, of course, most important for natural sciences, but even for applied sciences, universities have a significant responsibility to conduct basic research.

In my opinion, Japanese universities – and Japan as a whole – must pay more attention to basic research, be it in the fields of pure scientific research or applied scientific research.

I seriously lament the current over-valuation of application-oriented research, a trend which is not confined to Japan, but can also be noticed in the United States and even in Europe, despite its strong tradition in pure scientific research.

Figure 6. Comparison of the proportion of students per academic field

Country name	Year	Sex	Total	Human sciences and arts	Law, economics, etc.	Science	Engineering	Agriculture	Medicine, dentistry, pharmacy, health	Education and teaching training	Housekeeping	Other
			%	%	%	%	%	%	%	%	%	%
Japan	1980 2001	Total	100.0	16.7	41.2	3.1	19.5	3.7	5.1	8.2	2.0	0.4
		Male	100.0	9.5	47.5	4.1	27.5	2.8	3.3	3.9	0.1	1.1
		Female	100.0	36.3	28.9	2.5	5.3	3.2	7.3	9.7	4.9	2.1
		Total	100.0	19.8	40.3	3.5	19.0	3.0	4.8	6.1	1.9	1.5
USA	1980 1997	Total	100.0	19.1	36.5	8.4	9.6	2.3	6.8	11.6	2.0	3.7
		Total	100.0	21.4	34.8	8.2	9.2	2.0	7.1	8.9	1.5	6.9
United Kingdom	1999	Total	100.0	17.7	23.7	17.1	11.6	1.1	8.9	5.1	-	15.3
		Total	100.0	39.4	35.3	-	22.3	-	3.0	-	-	-
France	1980 1998	Total	100.0	41.1	29.9	-	25.5	-	1.3	-	-	2.2
		Total	100.0	8.3	19.7	8.1	9.1	2.6	11.7	39.5	0.5	0.4
Germany	1980 1998	Male	100.0	9.4	29.4	16.8	18.4	1.8	9.5	13.7	0.1	0.8
		Female	100.0	17.6	21.3	7.1	4.0	2.3	10.1	36.3	0.6	0.7
		Total	100.0	13.3	25.6	12.2	11.6	2.0	9.8	24.4	0.3	0.8
Russian Federation	1980 1999	Total	100.0	0.9	8.7	-	47.0	8.3	7.2	28.0	-	-
		Total	100.0	1.1	11.5	-	37.3	8.1	5.4	36.6	-	-

## Top-down and bottom-up approaches

Due to the persuasive promotion of the importance of scientific knowledge, Japan has recently experienced a boost in research funding. Overall, this is a very encouraging development. However, a potential side effect is the excessive application of the top-down approach towards university education and research, which should really be approached bottom-up. This is especially true in the case of creative research, where results depend heavily on the creativity of each individual researcher and will not easily be attained in a top-down environment.

By this, I do not mean to say that universities should be indifferent to the needs of a country or a society, nor that they should merely pursue their own interests. On the contrary, they are responsible to respond to a country's top-down requests. However, I would like to draw attention to the importance of the independent judgment of a university. Universities should not just act upon the demands of a country or society, but should carry out their activities with an independent frame of mind.

## Cooperation among academia, industry and administration

Until about 20 or 30 years ago, many academics in Japan were against the idea of cooperation between universities and the industrial world. This viewpoint no longer holds out today, since many people emphasize the importance of this cooperation.

I have always advocated such cooperation on the precondition that the independence of universities is secured. For this, American universities serve as a good example.

## The independence and autonomy of the university

I have already drawn attention to the importance of the independent judgment of universities when considering various questions, such as how a university should respond to a country's top-down strategy (which not only affects research, but also education) and how a university should cooperate with the industrial world and society as a whole.

I will now present my views on the independence and the autonomy of

a university. This is not just of philosophical concern. To the contrary, we need to consider this issue in a very realistic way, particularly when national universities will be converted into semi-public corporations. Different viewpoints exist on the autonomy of a university in various parts of the world, since this issue is closely interconnected with a country's history of university development.

In my opinion, the autonomy of a university consists of two elements: the freedom to decide on the content of education and research, and the freedom to select people appropriate for this purpose. One condition to realize this kind of autonomy is sufficient financial backup. As I explained earlier, efforts have to be made to enlarge public expenditures for higher education, especially in Japan.

My definition of "autonomy" does not imply that all relations with society should be cut, nor does it imply a feeling of supremacy. Universities should continuously pay attention to the needs of society, seek advice and welcome suggestions. On the other hand, they should also reward society with obtained results.

Japanese universities – in particular, long-established national universities – are largely dependent on the state in a financial and organizational sense. In my opinion, this has prevented them from attaining true autonomy.

From April 2004, national universities in Japan will be expected to develop into semi-public corporate agencies, which will no longer employ public servants. I hope that these universities will become truly independent bodies, in which the rector will have real managerial power and in which sound financial principles will be followed and personnel rights will be provided.

I would like to conclude my presentation with seven recommendations, which I feel are crucial for all Japanese universities, public and private:

First, the financial basis of universities needs to be strengthened.

Second, unique characteristics should be developed in terms of the goals, organization and policies of a university. It should be made clear which targets to aim for, especially in the case of research-oriented universities, high-level technical education-oriented universities and intermediate technical education-oriented universities.

Third, it should be decided how to handle the issue of general education. The faculty of general education should be reconstructed

immediately, especially in the case of research-oriented universities and high-level technical education-oriented universities.

Fourth, the autonomy of the university and the leadership of the rector need to be guaranteed.

Fifth, the degree of cooperation among industry, academia and administration needs to be strengthened.

Sixth, external evaluations need to be encouraged.

And seventh, the size of the foreign teaching staff should seriously be enlarged in order to become truly international.

With these remarks, I would like to finish my presentation.

Thank you very much for your attention.



## Michio Nagai

Senior Adviser to the Rector (1979–1994)

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Dr. Michio Nagai (1923–2000) was appointed Senior Adviser to the Rector in 1979. Dr. Nagai began his career as an educator, teaching sociology at Kyoto University and then Tokyo Institute of Technology. He also taught as Visiting Professor at Columbia University, Hong Kong University, Stanford University and El Colegio de México, and as Guest

Professor at Keio University.

In 1970, Dr. Nagai became a member of the Editorial Board of The Asahi Shimbun Press, and later (1977–89) was Guest Editorial Writer for *The Asahi Shimbun*.

He served as Director of Communications for the East-West Center (USA) from 1972 to 1973. In 1974, Dr. Nagai was appointed Minister of Education, Science and Culture (Japan), a post he held until 1976. In 1977, he returned to academia as a professor of international relations at Sophia University (until 1984).

He served as Senior Adviser to the Rector of the United Nations University for 15 years, from 1979 to 1994. From 1989, he also served as Chairman of the Board of Trustees of The International House of Japan, Inc.

Dr. Nagai received many honours during his long and distinguished career, including the Mainichi Culture Award (1965), Yoshino Sakuzo Award (1969), Mexican Government Aguila Asteca Medal (1975), French Government Commandeur des Arts et des Lettres (1984), NHK Broadcasting Award (1984), and Grand Cordon of the Order of the Rising Sun (1993).

Dr. Nagai authored many books in Japanese and several in English, including *Higher Education in Japan* (1971) and *Education and Indoctrination* (1976). Dr. Nagai is also (with Miguel Urrutia) the co-author of *Meiji Ishin: Restoration and Revolution* (1985).

## Michio Nagai Memorial Lectures

- 2000 Prof. Justin Thorens, former Rector of the University of Geneva and former Chair of the UNU Council: “The United Nations University: Why, and why in Japan, and what for? The vision of Michio Nagai”
- 2001 Dr. Yasuo Miyakawa, Professor, Graduate School of Social and Cultural Studies, Kyushu University: “Evolution of Higher Education and the Role of UNU in Japan on the Global Scene”
- 2002 Prof. Akito Arima, former Minister of Education and former President of the University of Tokyo: “The Future of Higher Education in Japan”

***The African Renaissance: South Africa and the World***, by Thabo Mbeki, Deputy President of the Republic of South Africa (presentation: April 1998), 1998

***The Declaration of Human Rights: A Living Document***, by Mary Robinson, United Nations High Commissioner for Human Rights (presentation: January 1998), 1998

***The Humanitarian Challenge in a World of Conflict: The Plight of Land-mine Victims***, Fridtjof Nansen Memorial Lecture 1998, by Astrid Nøklebye Heiberg, President of the International Federation of Red Cross and Red Crescent Societies (presentation: November 1998), 1999

***African Development in the 21st Century***, Public Forum on African Development in the 21st Century, by Cassim Chilumpha, Minister of Finance of the Republic of Malawi; and Delphin G. Rwegasira, Executive Director, African Economic Research Consortium (presentation: October 1998), 1999

***Donor Coordination and the Effectiveness of Development Assistance***, by Hisashi Owada, Permanent Representative of Japan to the United Nations; Joseph Stiglitz, Senior Vice President, The World Bank; Patrizio Civili, Assistant Secretary-General for Policy Coordination and Inter-Agency Affairs Department of Economic and Social Affairs, United Nations; and Carol Bellamy, Executive Director, United Nations Children's Fund (UNICEF) (presentation: June 1999), 1999

***Preparing for the Worst: Can We Give Hope to Victims in Complex Emergencies?***, Fridtjof Nansen Memorial Lecture 1999, by Dr. Gro Harlem Brundtland, Director-General, World Health Organization (presentation: November 1999), 2000

***State Security – Human Security***, Fridtjof Nansen Memorial Lecture 2001, by Sadako Ogata, Former United Nations High Commissioner for Refugees (presentation: December 2001), 2002

***How Can the Impoverishment of the Poorest Countries Be Stopped?***, by Rubens Ricuperro, Secretary-General of UNCTAD (presentation: November 2002), 2003



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