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Academic Productivity and Development of Human Resources in Higher Education

Akira ARIMOTO

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Introduction

Current social changes worldwide have brought about a great deal of pressure on and expectations of higher education systems to the extent that they have to reform themselves. Accordingly, academic reform is thought to be a key concept requiring attention from people both within and outside universities and colleges throughout the world. Among the many fields to be reformed in academia, how to invigorate so-called “academic work” - which includes research, teaching, and service - is likely to be most important, because it is considered to be part of the core activities of universities and colleges. In the scientific community, the term “scientific productivity” was originally used by Robert Merton in the field of the sociology of science, focusing on the natural sciences (1938 [1970]), as an indicator of the level of activity. Similarly, the term “academic productivity” was introduced into the field of higher education research in Japan in 1973 by Michiya Shinbori as a modified concept of scientific productivity but with a focus on not only the natural sciences but also on the humanities and social sciences (Shinbori, 1973; Arimoto, ed., 1994). This new concept of academic productivity, consisting of research, teaching, and service productivity, is an indicator of the level of activity related to the academic community; both scientific community and academic community together share the concept of research productivity.

The material of such academic productivity is knowledge, including advanced knowledge and scientific knowledge both of which are thought to be equivalent to academic disciplines. The function of knowledge can be related to a typology of productivity: discovery of knowledge is related to research; dissemination of knowledge is related to teaching; application of knowledge is related to service; in addition, control of knowledge can be related to governance including administration and management. Accordingly the main actors in academic productivity are defined by their knowledge functions: they are mainly faculty members as researchers and scientists, teachers, but also consultants or, administrators. Other incumbents of academia, such as non-academic staff and students, also play certain roles either manifestly or latently in the processes of academic productivity. The objects of productivity in research and teaching among these areas of productivity mainly consist of “eponymy” and “human resources”. The former is absolutely adaptable to research productivity in which remarkable discovery is often rewarded in the form of eponymy as in the Doppler effect, Boyle’s law, and Newton’s laws of motion. On the other hand the latter is adaptable to teaching productivity in which distinguished dissemination of knowledge is connected to distinguished

* Director and Professor, R.I.H.E., Hiroshima University

production of human resources, valuable for social development. Teaching productivity means the product of teaching, which functions as one of the most important vehicles in academia. Teaching is increasingly strengthening its own position in the emerging knowledge-based society, which in turn is substantially dependent on the dissemination of knowledge and demands higher quality assurance of human resources.

In this broad context, it is recognizable that in the relationship between the demands of social change to higher education reforms, the development of human resources on the basis of teaching productivity in universities and colleges, and social development are working together. This paper deals with this relationship focusing on the Asian and Pacific regions and especially on Japan, and discusses the pressure of social change on higher education, the expectations for the reforms in higher education, and activation of human resources.

1. Pressure of Social Changes on Higher Education

(1) Social Changes

Current social changes worldwide are characterized by various factors: they include globalization, emergence of knowledge-based societies, market mechanisms, the Information Technology (IT) revolution, and so forth. It is clear that they are effecting social changes either individually or collectively. Their effects upon higher education and its reform are increasingly powerful. Globalization, for example, is bringing about global-standardization of higher education development both in developed countries and in developing countries. Pressure of globalization on countries worldwide necessarily implies a great deal of competition for priority among almost all countries in order to obtain good reputation in the quality of their higher education productivity including the aspects of research, teaching, social service, administration and management.

This kind of national competition for priority is inevitably related to the allocation of human resources among the participating countries. Generally speaking, the developed countries are in advantageous positions in allocation of natural and human resources. This is shown by the fact that the most advanced countries have already moved to and beyond the advanced stages of higher education development. For example, according to Martin Trow's model, the U. S. A. has first among all countries passed the elite stage and the next massification stage for development of higher education faster than any other country in the world (Trow, 1973). It is now proceeding as the front runner to a post-massification stage, or even to a universal stage. On the other hand, many other countries, and especially many countries in the Asian and Pacific region, are still operating in the elite stage, or just arriving at the massification stage. During the period of "internationalization" it was possible for the developmental process to enjoy an initiative in choosing between alternative advanced models. This has now been overtaken by the age of globalization where pressure is exerted to concentrate on the most advanced model as a pattern for development.

Second, knowledge-based society is characterized by stressing the value of knowledge. Every society in

the process of proceeding to and at this stage intends to devote much attention to academia, which to a considerable degree is basically involved in discovery, dissemination, and application of knowledge. According to my own definitions, this type of society characterized on the basis of knowledge can be categorized as Knowledge-Based Society 2 [KBS2]. This should be analytically distinguished from its precursor, Knowledge-Based Society 1 [KBS1], which is proper to the university working with functions of a scientific community or an academic scientific community (Arimoto, 2002, p.127).

“The university is by nature a knowledge-based association, an organization whose foundation is knowledge. Now, however, society in general is becoming, to an increasing extent, a knowledge-based association. One of the key terms used.....is the concept of knowledge-based society. Analytically, a tentative distinction can be made between what I define as Knowledge-Based Society 1 [KBS1] and Knowledge-Based Society 2 [KBS2]. The former refers to the academic enterprise, whose main aim is the development of knowledge; the latter refers to society at large, which is increasingly including academic activities within its own functions and roles. Society has lagged many years behind academia in carrying out the three functions of research, teaching and learning based on the advancement of knowledge, the resources of knowledge, and the academic discipline. However, the importance of knowledge is now part of the social fabric, and the distinction between society in general (KBS2) and the knowledge-based society of the university (KBS1) has begun to blur”.

As a series of researches in the field of sociology of science have testified, allocation of natural and human resources is not equal in the scientific community [KBS1]. There exists a social stratification consisting of a center of learning (COL), at the apex of a pyramid and periphery at the base (Ben-David, 1977). Today, what might be called the fusion of the university into wider society is occurring. What we call KBS2 is forming outside the university and subsuming it. The knowledge function that worked originally in KBS1 is now also working in KBS2. As far as the allocation of human resources is concerned, the centers of learning, usually located in the advanced countries, have an intimate relationship with brain-gain in which, just like a magnet, many distinguished researchers and students are attracted from developing countries. Conversely, the periphery of learning, mainly situated in the developing countries, is inclined to be brain-drain by which they are compelled to loose more or less of their own human resources.

Altbach's recent description seems to be clearly related to this situation occurring throughout the world under a combination of emerging globalization and the KBS2 (Altbach, ed., 2002, p.7).

“The most visible aspect of globalization is the emergence of a worldwide market for academic talent, stimulated in part by the large numbers of students who study abroad. It must be emphasized that flows of foreign students and the international labor market for scholars and scientists are overwhelmingly a South-to-North phenomenon. Approximately 1.5 million students study outside the borders of their own countries the vast majority of these students are from developing countries and their destinations are in the

industrialized nations. The United States is the host country for 547,000 students. Western Europe, Australia, and Canada absorb most of the rest. There is only a tiny flow of student from North to South, although there is some South-South flow. A large majority of international students from developing countries study for advanced degree in contrast to patterns from the industrialized nations. Where students tend to study for their first degree or spend just a semester or year abroad. A Significant number of students who obtain their degrees abroad do not return home, and those who do return and join the academic profession bring the values and orientations of the country in which they studied back with them.”

This kind of unequal trend of balance of export and import is also manifestly recognized in North-South perspective accompanying brain-gain in North and brain-drain in South. This picture is typically adaptable to the relationship between developed and developing countries; but it is also adaptable to the relation between developed and developed countries. For example, if we look at the number of foreign students in Japan by region of origin in 1995, the proportion from of Asia is 91.5% followed by North America 2.3%, and Africa 0.9%: in total they number 53,847 students. On the other hand, of the number of Japanese who went abroad for study and training by region of study in 1995, the proportion going to North America is up to 55.2%; followed by Europe, 22.2%; Asia, 14.7%; Pacific 7.5% (MEXT, 1997, p.56). These figures suggest that Japan behaves as if it were a developed county to Asian countries but a developing country to North America and Europe. In particular, the U. S. A. has annually as many as 46,000 students from Japan, while Japan has only 1,000 students from the USA (See TABLE 1 & 2).

In the knowledge-based society emerging throughout the world, this kind of phenomenon is probably strengthened to the extent that competition is encouraged and promoted among some countries, especially among advanced countries, so as to gain human as well as natural resources in attempt to realize the brain-gain orientation. For many other countries, especially developing countries, though it is fairly difficult to do this. One reason is probably because globalization is more or less connected to the developed countries as the centers of learning, as knowledge provides a linkage to the economy just as the knowledge economy itself provides a nexus with globalization.

TABLE 1 Number of Students from Overseas (By Home Country, 1999)

Country	Number	Rate (%)
China	25907	46.5
Korea	11897	21.3
Taiwan	4085	7.3
Malaysia	2005	3.6
Indonesia	1220	2.2
Thailand	1107	2.0
The United States	1073	1.9
Bangladesh	806	1.4

Vietnam	558	1.0
The Philippines	497	0.9
Other Countries	6600	11.8
Total	55755	100.0

Source: Daigaku Singikai (University Council). (2000). *Global-ka jidai ni motomerareru koto kyoiku no arikata ni tsuite (A Vision for Higher Education in the Global Society)*, 77.

TABLE 2 Number of Students Studying Abroad from Japan at Higher Education Level

Country	Number	(Year of statistics)
The United States	46406	1998
China	14684	1998
The United Kingdom	5332	1997
Korea	1871	1999
Australia	1796	1998
Germany	1788	1997
France	1314	1995
Canada	774	1993
New Zealand	378	1997
Austria	359	2000
Other Countries	884	
Total	75586	

Source: Daigaku Singikai (University Council). (2000). *Global-ka jidai ni motomerareru koto kyoiku no arikata ni tsuite (A Vision for Higher Education in the Global Society)*, 76.

Third, the IT revolution is so powerful today that it cannot avoid affecting innovations of methodology in higher education. Traditionally, higher education has developed gradually over eight centuries on the basis of “collegiate education” derived, for example, from Merton College at Oxford University, in the Middle Ages (Clark, 1995). In this traditional university, liberal arts education, or general education, was basically taught to traditional students in undergraduate courses by a one-to-one-based tutorial system, or osmosis process. The newly emerging type of IT-based institutions are mainly involved in professional and vocational education for non-traditional or adult students rather than liberal arts education for traditional students. This new kind of education, emerging through a series of innovative forms from the IT revolution, the internet, virtual universities, e-learning, on-line education and so forth, is suitable for the new students and especially for adult students (Yoshida, 2002). Their pattern of life-long education, leads also to extending access to new students who have not had opportunity to get into the traditional universities and colleges. In accord with this kind of technological innovation and development, it is easily seen that massification of higher education can rapidly be transformed into universal access to higher education.

(2) Massification of Higher Education

A mutual relationship between higher education and economic growth is well testified by the fact that the social function of academic institutions usually corresponds more or less with economic growth. In general, educational institutions have a mutual relation with other social institutions such as politics, economics, religion, science and technology and through them a profound relation to economic institutions. For example, an economic institution expects higher education to train manpower which possesses useful and valuable knowledge and ability sufficient to contribute to economic growth; and conversely, higher education demands that the economy provides higher education with income and affluence sufficient to meet with the supply of such trained manpower. Similarly, the development of knowledge, information, and technology through research made by academic researchers in chairs, institutes, and laboratories on campus may contribute to economic growth. Service activity provided by academics also may bring about, directly or indirectly, a great deal of knowledge, information, and technology leading to economic development.

Historically speaking, social and economic growth has naturally brought about academic growth, successfully taking development of higher education from the elite to the mass stage. As is to be expected, social expectations of academe have been gradually expanding in modern society owing to the fact that universities and colleges are located in the midst of an information-oriented society and, even more, a knowledge-based society with knowledge production and dissemination as their central function. Expansion of higher education in terms of the numbers of institutions, faculty, staff and students worldwide has been rapid in the 20th and early 21st centuries; its trend continues. It has developed in advanced countries to the extent that their higher education systems have gradually passed through the elite, massification, and post-massification stages; they are now shifting to the stage of either universal access or universal participation. In this context, there exists a wide gap between the developed countries and the developing countries reflecting the gap of economic development between the two groups.

This is true in the Asian and Pacific region where many countries still remain at the massification stage or even the elite stage rather than the post-massification stage. How best to make economic investment for the growth and encouragement of development of higher education is the most important factor facing these developing countries so as to make it possible for them to proceed to the next stage where more of their populations can have access to higher education.

Of course, there are many problems to be resolved not only in the early developmental stages of higher education but also in the advanced stages. For example, in Japan, which has already proceeded beyond the massification stage and is now passing through a post-massification stage, is hesitating and fumbling in front of the door to the stage of universal access. Japan belongs to one of the most developed groups in the progress of massification and post-massification at least on the scale indicated by the statistics for 2002 (MEXT, 2003).

The number of four-year universities and colleges is 702 (100 national; 76 public; 526 private); the number

of two-year colleges is 525 (13 national; 49 public; 463 private); academic staff number 156,000 (full-time) and 154,000 (part-time); support staff are 175,000 (full-time), and 4,000 (part-time); the number of students in four-year universities and colleges is 2,803,000 (622,000 national; 120,000 public; 2,061,113 private) and in two-year colleges, 250,000 (4,000 national; 18,000 public; 227,000 private).

According to the statistics, the number of institutions has increased from 228 in 1955 at the elite stage of higher education development to 382 in 1970 in the midst of the massification stage and to 702 in 2002 at the post-massification stage. Over the same period, the number of students has increased by a factor of 5.2 times from 523,000 to 2,720,000. The number of full-time faculty members has similarly increased but by a factor of 4.0 from 38,000 to 152,000. The massification stage has been estimated to extend from 1965 when the proportion of university access by eighteen-year cohort exceeded 15 percent to around the 1980's when the trend of increasing participation began to slow down. During this period of some two decades the number of institutions increased rapidly: by 2002 there were 3.1 times the number of institutions existing in 1955 and 1.9 times of those in 1970 (TABLE 3). The private sector has constantly contributed a majority share by providing about 70 percent of institutions and students. This establishes that the private sector has taken a substantially leading role in the massification process of higher education in Japan. This also indicates that privatization, which has now become one of issues in higher education throughout the world, was realized in this country earlier than in many other countries, including the developed countries in Europe.

Reflecting the factors of economic rationalization and a decrease in the number of traditional eighteen-year old students in Japan from 1.5 million in 2003 to approximately 1.0 million in 2020, the higher education

TABLE 3 Number of Universities (Four Year) in Transition

Year	Total	National	Public	private
1950	201			
1955	228	72	34	122
1960	245	72	33	140
1965	317	73	35	209
1970	382	75	33	274
1975	420	81	34	305
1980	446	93	34	319
1985	460	95	34	331
1990	507	96	39	372
1995	565	98	52	415
2000	649	99	72	478
2002	702	100	76	526

Source: MEXT, 2003.

system is being confronted with the question of how to reform itself so as to cope with demands on the system from both internal and external perspectives. The national government has engaged in a review of academic policy since 1991. MEXT introduced new guidelines for the reform of both higher education institutions and the system as a whole by issuing its 1991 Ordinance. More recently this has been reinforced by a series of plans based on the University Council's proposals in 1998 (Arimoto and Yamamoto, eds., 2003).

2. Expectations for the Reforms in Higher Education

National systems of higher education are changing due both to social changes and to the logic intrinsic to academia. Reforms in higher education are necessarily proceeding in almost all countries in order to raise and improve and qualitative academic productivity. If we make an international comparison of academic reforms, it is not difficult to establish that all countries, regardless of their status as advanced or developing countries, are now conducting reforms largely on the basis of the effects of social changes and intrinsic logic.

First a market principle is introduced in the sense that survival of an institution depends on the assurance of the quality of its academic productivity. As a result, the method for allocation of the budget is changing from an equitable to a differential system, from one oriented equality to one oriented competitively. As a whole, the policy has shifted from the convoy method, which attempted to protect all institutions against natural selection and closure, to acceptance of the possibility of these phenomena in accordance with introduction of market principles. This trend tends to have a connection with the privatization of the national sector just as the Japanese national universities are changing to “Kokuritsu Daigaku Hojin” (national university corporations) from 2004.

Second, if we pay attention to the logic working inside academia, there is a great deal of pressure toward reconstruction of knowledge resulting from the effects of the newly apparent knowledge-based society [KBS2]. Rethinking about knowledge is necessary for faculty members (who have been living in KBS1), whether they are scientists, researchers, or scholars, so that their institutions as well as themselves may survive. Reconstruction of knowledge in every academic discipline and also in the linkages between various kinds of disciplines is expected to result in academic productivity in research, teaching, service, and administration as a reflection of the process of integrating two societies of KBS1 and KBS2.

Third, academic productivity has to be concretely traced in each knowledge function and notably in both research and teaching.

(1) Academic Productivity in Research

In the case of research, some processes are necessary to realize high research productivity: a national policy for science and higher education development; institutionalization of a scientific ethos into universities and colleges; education and training of researchers in the process of scientific socialization; evaluation and

reward systems; the climate and atmosphere in departments and institutes. Robert Merton pointed out the existence of CUDOS (Community, Universalism, Disinterestedness, Organized Skepticism, Competition and Originality) as the ethos of a scientific community (Merton, 1973). Such an ethos does not necessarily appear clearly among scientists, researchers and scholars in contemporary universities and colleges that are becoming increasingly borderless with wider society: this is seen in the concept of KBS1 and KBS2 described above and also in the emerging concept of Mode 1 and Mode 2 (Gibbons, et. al., 1994).

As far as research productivity is concerned, the relationship between the academic community within the university and human resources of researchers and students (as apprentice or embryo researchers) is sufficiently important to need intensive analysis. It is clear that without such a relationship neither development of human resources nor research productivity is likely to be available at all. As a result, it is true that the advanced systems and institutions possessing Centers of Learning (COL) or Centers of Excellence (COE) have been successful enough so far in this direction; at the same time, the peripheral systems and institutions need to be improved so that they can catch up with the COE groups in advanced systems. As described above, many distinguished students are in the process of brain drainage from developing countries to developed countries. The U.S.A. especially, attracts students not only from developing but also from developed countries. For example, the proportions of foreign doctoral recipients (in all fields) from U.S.A. universities who planned to stay in United States in 1999 are large: from Europe, 40.8%; followed by East/South Asia, 36.4%; North/South America, 30.2%; Pacific/Australasia, 28.6%; West Asia, 25.5%; Africa, 22.9% (National Science Foundation, 2002, p. A2-50). It is correct to identify this as a symptom of globalization, and still more as an indicator of Americanization in the field of higher education and research.

If we consider the Japanese situation in relation to this, it is understandable that, as one of the developed countries, it is necessarily involved in dealing with many problems. The second proposal by the Human Resources Committee in the Council of Science and Technology is connected with a policy for training and preserving human resources for research so as to promote international competitiveness (Council of Science and Technology, 2003). A brief outline of their proposals is as follows.

a. Arrangements for training in the research human resources function. Specifically this requires arrangements by those who are in charge of research human resources training- and those who are responsible for international competition - by introducing a sufficiently international research environment. For example, it means accepting top level foreign researchers, collaboration with various overseas agencies in training human resources, constructing a research environment, including an environment for communication in English, with global standards. Training human resources by sending them to first class organizations abroad is also necessary.

b. Realization of an environment in which a wide range of human resources are equipped to develop their abilities and commitment to research activity. Amongst others the following practices are needed: construction of an open and fair personnel system in order adequately to evaluate the ability and achievement of researchers; useful application of such results to the treatment of individual researchers.

c. Introduction of a supply mechanism able to cope with rapidly changing social demands for research human resources. For this aim, it is necessary to construct a flexible training system that can accommodate social needs and also to establish partnerships between universities and industry. Promotion of recurrent education has to be established to support recruitment of research human resources from other areas both inside and outside the country and, for this purpose, the development of a model culture must be intensively encouraged.

(2) Academic Productivity in Teaching

In the case of teaching, academic productivity means a commitment to teaching productivity; in turn this leads to quality assurance of student ability and achievement as an outcome of teaching classes within the educational process. At the developmental stage of massification and post-massification in higher education, the average scores of student achievement are reported to have declined in some countries. Burton Clark, for example, identified this effect in the U. S. A. as the phenomenon of schoolification of universities and colleges (Clark, 1997). Students have become diversified to the extent that they often lack the basic abilities and skills needed in reading, writing, calculating, and even thinking. In an international survey on the academic profession in fourteen countries, faculty members responded to a questionnaire related to student abilities. They identified declining achievement of students over a recent period of five years in almost all those countries where higher education had reached the massification stage (Altbach, ed., 1996). We should pay much attention to the implications of this with particular consideration of some of the specific problems: the real situation of the process of student socialization in schools and colleges; articulation of schools and colleges and transition of students between the two educational segments, from a viewpoint of student development; and especially, the teaching-learning process in colleges. In all the aspects of input, throughput and output of the teaching-learning process in universities and colleges, students as learners are considered to be central to this most important human resource.

Improvement of teaching productivity in the stages of massification and post-massification depends on how the undesirable and insufficient state of student achievement can be raised to an international level by pursuing quality assurance of educational processes and outcomes. In order to realize this purpose and practice, a systematic improvement of input, throughput and output, especially output is necessary. Development of Performance Indicators (PIs) is inescapable, although with a few notable exceptions, such as Australia, it has not become established in the countries of the Asian and Pacific region.

In addition, systematic improvement of output related to individual academic organizations, faculty, and students is necessary. Especially faculty development (FD) is an important and identifiable activity for realizing this purpose and practice. The extent of institutionalization of FD into universities and colleges provides a kind of barometer to estimate realization of the purpose and practice (Arimoto, 2001). In the case of Japan, the University Council proposed in 1998 a necessity to accept at least a semi-obligation of FD institutionally into university and colleges (University Council, 1998). Since then faculty members'

commitment to FD has to a considerable extent become established. However, quality assurance of FD activity is required at this initial stage of development when its institutionalization has been improved to the extent that more than 60% of all institutions - and more than 90% of the national institutions - have undertaken FD activity thus far.

(3) Rationalization of Governance, Management and Administration

As it is recognised to be indispensable for organizational survival, a systematic reform of governance, administration and management of universities and colleges has become one of the main issues in recent years. It is clear that increasing pressures for rationalization of academic organizations arising from social changes from outside academia and the logic of academic disciplines from within academia are bringing about a shift of academic organization from a traditional bottom-up type to a new top-down type. The former is the traditional type derived from the mediaeval university in which the academic guild held initiative and hegemony in governance, administration and management. The latter is recently established derived mainly from social demands for rationalization, efficiency, relevance, and the effects of orienting academic organizations in response to accountability. This kind of shift is related to emergence of a worldwide market orientation. In the 1980s, a series of policies for university reform were introduced from a perspective of new liberalism as a mechanism for dealing with the “British disease”, which was regarded as responsible for the poor economic performance in Britain. Subsequently, the application of market principles and mechanisms has spread across the world, with significant effects becoming evident today in various countries, including the U.S.A and Japan.

Higher education governance consists of various tiers: national government, local governments, institutions, faculty and departments, and academic disciplines. According to Burton Clark’s model, a dynamic structure and function of governance is defined by the relationship among the authorities in the state, the market, and the academic oligarchy (Clark, 1983). In this model, there are multiple layers of authority identified as a superstructure, a middle or enterprise structure, and an understructure. The superstructure relates to the arrangement of control mechanisms by governments and other systems possessing a similar relationship with academic organizations; the middle structure corresponds to the individual institutions and organizations; and the understructure consists of the basic operating units for academic work and disciplines.

National governance systems differ as a result of their past history and tradition. Grant Harman has designated three types: Continental, British, and USA models (Reed, et.al., 2002, p.xxvi). In the Continental model of governance organization, authority is located at the two poles of state government and academic guild; in the British model, it is shared between faculty and trustees; while in the U. S. A. model, although it seems to be similar to British model, it has a structure in which authority is weak at the level of faculty and strong at the level of the trustees.

With reference to this kind of structure, the recent worldwide academic reforms have transformed the

organizational traits of universities and colleges. Two types of system are distinguishable on the basis of the location of authority. The type in which authority is located in the superstructure - that is in government and at the upper bureaucratic level - is a top-down system; while the type in which authority resides in the operating unit - such as in the professorial chair, department, institute, or academic discipline - is a bottom-up system. The former implies strong national and governmental powers so that policy and planning are decided and implemented at the level of state government with accompanying subordination of the universities and colleges. In contrast, the latter places autonomy within academia so that policy and planning are substantially carried out on the initiative and authority of the universities and colleges. If we observe recent trends of higher education worldwide, it is undeniable that the picture is one of a declining trend of bottom-up and an increasing trend of top-down authority(Arimoto, ed., 2001; 2002).

Recent international comparative studies have analysed the unequal trends in the patterns of governance as seen in the relationship among the systems, the institutions, and the operating units in institutions. Differing trends are recognizable between the Continental and the Anglo Saxon models in terms of system level governance. The Continental model gives authority to both state and guild, while the Anglo Saxon model does not regard higher education as controlled by the state and stresses academic freedom and academic autonomy rather than state control (Amaral, et.al., 2002). In these changing trends, the importance of leadership among presidents, deans, professors, and staff has become increasingly noticeable. Promotion of productivity in governance through the human resources available in these categories has necessarily resulted in promotion of the productivity of academic work.

3. Activation of Human Resources

(1) Present Situation of Undergraduate Education

At the stage of massification, quantitative development is usually observed in the statistics related to institutions, students, faculty, and staff. In accord with this trend, it is clear that a stratification has been firmly established among these factors. For institutions, for example, three types of hierarchy can be recognized in the national systems: the type of pinnacle as is seen in the systems of Britain, France, Japan, China, Korea; an intermediate type as is seen in the U. S. A., Canada, Australia; and a horizontal or flat type of flat structure is seen in Italy and Germany (cf. Clark, 1983). Among these, the sharp pinnacle of Oxford and Cambridge has been gradually created over the eight-century length of higher education history in Britain. The same function is recognizable in France where Grande Ecoles occupy the most prestigious hierarchical status in higher education. It is interesting that a similar pinnacle has also been created in Japan by Tokyo University and Kyoto University through a history of only one century since the introduction of a modern higher education system on the peak of the institutionally stratified pyramid by virtue of strong national control of higher education (Amano, 1993). The same phenomenon is recognizable in other later-developed countries which introduced advanced models of higher education from western developed

countries, in order to catch up with them. In these countries, creation of modern universities and colleges was thought to be a necessity prior to development of human resources and modernization.

As Ronald Dore said, a “late development effect” has worked in the developing countries with intensive investment of resources in the key institutions so as to develop high quality human powers. As a result, a degree-ocratic society has been created in these countries. The traits of such societies are recognizable: the selection and allocation of human resources into social stratification has taken place substantially by the age of eighteen when the entrance examinations at universities and colleges scrutinize and select them for elite and non-elite courses and direct them at a fairly early stage to lifelong careers. In other words, mobility by contest takes place up to the age of eighteen-years when selection is made; while sponsored mobility occurs subsequently for those who are selected by the prestigious institutions.

At the time of massification of higher education, a scale of hierarchy is extended in parallel to the expansion of the student population enrolled in universities and colleges. The pinnacle has become much steeper. In Japan, for example, the few prestigious institutions are belong to the national sector, with its characteristics of lower tuition charges and fees and better education than the private or public sectors. Accordingly, high ability students who are accepted by these institutions can enjoy rather good education at rather low cost. Generally speaking, students from all social levels including upper, middle, and lower classes can enter these prestigious institutions, if their achievements are high enough to pass the entrance examinations. However, over time the evidence shows that students’ social classes have risen and recently it is reported to have become very difficult for lower class students to enter these institutions. While this is true for the most prestigious national institutions with their cheaper tuitions, it is even more evident for the most prestigious of the private institutions with their more expensive tuitions and fees. Overall, the upper social class sends its students to the upper social stratification of higher education institutions, while the lower class proceeds to the lower stratification. The fact is that a close relationship between social class and opportunity of education is well correlated and incidentally conforms to Pierre Bourdieu’s model for reproduction of culture (Bourdieu, 1999).

(2) Students in Massification and Post-Massification Stage

Students at the elite stage of higher education were homogeneous in their ability, achievement, moral and social class origin but today in these same categories they are diversified even in the same national system. In a given system, however, an elite segment will still exist even after massification has developed throughout all aspects of an institution, faculty, staff, and students. An elite segment in the social stratification of institutions, faculty, and students is located in the prestigious institutions: in Japan, for example, this is seen in the former imperial universities and a few private institutions.

Human resources in every system are usually developed through a mechanism in which their selection and allocation of human resources take place through the filter of social stratification. There is an intimate connection between social class, quality of student, and prestige of institution. On the basis of a series of

sociological surveys, it becomes evident that the higher social classes - upper and upper middle classes - are apt to send their children to high-ranking institutions; conversely, those in the lower classes send their children to low-ranking institutions. Naturally, students from the higher classes tend to remain in their original higher classes, probably because of the possibility of their placement into high-ranking corporations and equivalent organizations in the labor market.

In this general picture, we are now facing an additional issue related to a trend of students' declining ability and achievement not only in the non-elite sector but also in the elite sector. It has frequently been pointed out that students' average achievement scores have been gradually declining in the massification stage in comparison to what it was in the elite stage. Even so, an elite group in the massification stage is expected to retain high abilities and achievement sufficient for students for them to be competitive with students in other systems. According to recent international comparative surveys of student ability and achievement some students now in the high ranking institutions reportedly achieve low scores even in tests of mathematics at junior high school level (Okabe, et. al., 1999). For example, when an international comparative survey, using the same kind of questionnaire was conducted, the average scores of students in the faculties of humanities and social sciences in elite universities in Japan are lower than those of their counterparts in China.

If this is generally true, what kinds of problems are there in terms of human resources development in the present massification stage of higher education? There are perhaps many problems: a changing social environment which is not working well to raise student ability and achievement; insufficient articulation between senior high school education and university and college education; lack of student morale and motivation for learning; an insufficient environment in universities and colleges, especially in the teaching process in class rooms; social indifference to teaching innovation in higher education reform. Among these factors, reform of the teaching process and its outcome in higher education is one of the most important problems related to the current phenomenon of student's declining ability and achievement.

(3) Responsibility and Duty of Faculty

Paying much attention to teaching so as to develop students abilities and achievement is more of a duty than a responsibility for faculty (Kennedy, 1997). However, in some countries faculty members prefer to pay much less attention to teaching, and much more attention and devote more energy to research. The Carnegie Foundation for the Advancement of Teaching examined the typology of faculty's research and teaching orientation among fourteen countries. In its survey, the differing patterns of faculty member's orientation to both research and teaching was recorded based on their assessment (Altbach, ed., 1996; Arimoto and Ehara, eds., 1996). Research orientation is high in universities conforming to the German type including Germany, the Netherlands, Sweden, Korea, and Japan; in contrast, teaching orientation is high in Latin American universities including Chile, Mexico, and Argentina; Russia is also included in this group. Both research and teaching orientation is high in Anglo Saxon universities including those in the United Kingdom, USA, Australia, Hong Kong. In the case of Japan which has a strong orientation to research, faculty members had

paid little attention to teaching for many years until 1998 when the University Council proposed the necessity of FD as a professional duty so as to improve faculty member's involvement in teaching. In spite of this expectation, however, it remains true that teaching orientation is difficult to realize in a climate in which the ideal of the German University model has been institutionalized at all levels of the system and institutions for as long as 120 years - that is since modern universities were established in this country.

One of the most important human resources in a university is its students. If the contemporary university is committed to development of its students to the expected international standard, then its faculty members must also provide a focal point, because not only students but also faculty members have a direct relationship with the teaching-learning process. They embody that aspect of the academic profession that is solely responsible for teaching as a part of academic work. They not only belong to the profession but as professionals, or experts in teaching they are committed to the teaching-learning process in their classrooms in spite of their limited teaching orientation.

In the process of teaching-learning, there are basically three dimensions: input, throughput and output. As input, human resources provide the materials that are developed by the process of throughput so as to maximize them as an output demonstrating high teaching productivity. As human resources at the input level, students are generally more diversified and lower in quality in universities at the massification stage than in elite universities. Faculty members are expected to raise this level of ability and achievement towards an ideal state by means of specific teaching activities and practices. In this context, it is true to say that the institutionalization of FD is absolutely indispensable not only for the Japanese system but also for all systems passing through the massification and post-massification stages.

Historically speaking, expected harmonious relationship of teacher and student prevailed in classrooms at the elite stage. They were homogeneous in social class, ability, motivation, achievement and so they could share the same kind of academic culture. Faculty members could teach on the basis of both their own learning and their discoveries at the frontiers of research; and students could participate in the teaching-learning process in classrooms located in an environment of research. At the massification stage, however, diversification and heterogeneity have become the modal environment in the relationship between faculty members and students. The number of teachers and students have expanded to the extent that the social as well as the psychological distances between them have increased greatly. This kind of gap is conventionally estimated to be smaller in the elite institutions and the most prestigious institutions than in non-elite institutions even in the massification stage. Theoretically this might be true, but empirically this seems unlikely. Some twenty years ago, it was said in Japan that only some 25 percent of students in a classroom of the prestigious universities could follow the teaching and comprehend its contents. The effects of massification are unlikely to be escapable even in elite institutions. If this is true, the gap must also be expanding in those elite institutions now facing massification and even more so with those facing post-massification, as well as those in non-elite institutions.

In this context, the diversification of students has already brought about many difficulties to the teaching-

learning process in many systems. Reconsideration of the teaching-learning process is needed in all those systems passing into or through the massification stage, as similar problems can be expected to occur in both developed and developing countries. International comparison is needed of the criteria of some of the factors comprising input, throughput, and output components of the teaching-learning process.

(1) Input level: ideals, aims, goals of education and teaching (at faculty as well as institutional level); minimum input standards of student ability and achievement; percentage of eighteen-year cohort eligible to enter university and college; minimum certification of faculty members for teaching (Professor, Associate Professor, Assistant Professor, etc.)

(2) Throughput level: institutionalization of FD; arrangement of curriculum; quality assurance through the teaching-learning process including such factors as GPA, CAP, credit for graduation, syllabus, textbooks, IT and multi-media (PP, OHP, PC, etc), office hour, evaluation of achievement, student evaluation of teaching, drop-out rate, homework assignment, tutorial system, etc.

(3) Output level: standards of academic productivity; effect of teaching; minimum standards of student ability and achievement at the output; performance indicators, benchmarking; national examinations and requirements; global standards for quality assurance such as ABET, JABEE, TOEFL, TOEIC; evaluation system (self evaluation, mutual evaluation, external evaluation); reward system (awards for good teaching, the best teacher of year, etc.); overall quality assurance problem of higher education in the context of the WTO.

4. Concluding Remarks

(1) Social changes, including globalization, knowledge-based society, market mechanisms, and the IT revolution are thought to be international phenomena observable in almost all countries worldwide. International competition as well as cooperation is broadly recognized as an accepted fact in this kind of trend. Needless to say this requires that every country should become competitive in its system of higher education in terms of academic work, and especially in the twin phases of education and research. As for education, an expectation of sufficient development of ability and achievement in human resources of students provides the basic target to be realized as soon as possible. This leads to reform of undergraduate as well as graduate education and especially of undergraduate education under the pressure from the effects of rapid and increasing massification.

As for research, an expectation of development of creativity in human resources is also a basic target to be realized as soon as possible. In this case it focuses on innovation of the system of training researchers and scientists in postgraduate education as well as subsequent to their recruitment in institutions and departments.

(2) In higher education, human resources consist of students, faculty members, non-academic staff, trustee members, presidents, and so forth. Development of such human resources is indispensable to the process of social development in higher education. The teaching-learning process exists at the core of undergraduate as

well as graduate education, and so both faculty members - as teachers - and students - as learners - are considered to be the important human resources in the social function of higher education. In this context, it is a concern to observe that many students are considered to be significantly under-achieving according to various investigations related to students' campus lives. Of course, this unsatisfactory situation has to be improved as soon as possible, as society's future vitality depends solely on full development of the abilities and achievements of students who attend the universities and colleges.

An increasing trend of under-achievement is more or less attributable to an effect of massification of higher education as it is shown in systems that have already shifted to the massified and post-massified stages. Given this recognition, it appears that the trend is inescapable not only in the developed countries but also in those developing countries undergoing the process of massification.

(3) For faculty members, pursuit of faculty development (FD) provides the route to enhancement of academic work and academic productivity in research, teaching, service, and management, but most importantly for teaching. In the 21st Century, the integration of research, teaching, and learning has gradually become to be seen as an important concept among faculty members. As Earnest Boyer described in his book, *Scholarship Reconsidered*, integration should be accomplished in a way that reflects the priority of teaching so that teacher's role can become more important (Boyer, 1991). This would bring about the necessity of improving faculty development so as to improve teaching productivity. As a result, the concept of scholarship has to be reconstructed so as to meet with the new pattern of higher education in which a shift to post-massification and universal access from the elite and massification stages is emerging for the first time in 800 years of higher education history.

(4) As far as research is concerned, it is said that in the 20th and 21st centuries the COE and COL have shifted from European countries such as Britain, France, and Germany to the U. S. A.. Such developed countries formed a top group of international social stratification in the scientific and academic world. A sort of brain drain has been increasingly observed in developing countries for many years, and it is also increasingly observed in developed countries. In accord with the CUDOS function (Merton) the consequent social stratification had been largely contained within academic and scientific community in KBS1. However, in a KBS2 society, extending over the full scope of society, a scientific ethos other than that of CUDOS is operative, reflecting the political and economic values of the whole of society. It probably also contains such factors as anti-communality, anti-universalism, anti-disinterestedness, anti-scepticism.....

As a result, in KBS2 rather than KBS1, many developing countries are naturally involved in the crucial problem of how to prevent this kind of brain drain and retain distinguished and talented human resources in their own countries. Of course, even among the developed countries, the same picture is more or less observable, because at this stage social stratification extends internationally and globally by virtue of the internationalization and globalization of total society. In Japan, for example, talented researchers and students are increasingly exported to western countries, and especially to the U. S. A.; while few distinguished scholars and students have been imported from these countries. It is undeniable that this trend is bringing

about a “hollowing-out of the knowledge phenomenon” (Council of Science and Technology, 2003) in the potentiality of research human resources in Japan. In this context, the problem of quality assurance of the higher education system is closely related to the problem of brain drain and gain and, consequently, to the problem of development of human resources.

(5) Some consideration has been given in this article to the relationship between academic productivity and development of human resources. In the emerging knowledge-based society, academic productivity is considered to be important not only in universities and colleges, or KBS1, but also for society in its totality, or KBS2. Academic productivity is usually fairly high in the systems, institutions, and organizations of centers of learning where they are inclined to gather distinguished scholars and students from all areas, both inside and outside the country. A social structure consisting of COE and its periphery is generally formed to the extent that differentiation between developed and developing countries is manifestly and latently recognizable. Both developed and developing countries are almost compulsorily involved in paying much attention to the development of human resources in education as well as in research in order to promote a level of academic productivity that can be expected to result in the development of the whole of society.

This paper has dealt tentatively with the situation relevant to Japan as one of the examples of a developed country. This status has been attained by the difficult process of catching up with developed countries after starting as a developing country about one century ago. If we were to make an international comparison in terms of the general problem of academic productivity and development of human resources in the 21st century, a much more detailed consideration would need to be given to the situation in other countries worldwide and especially those in the Asian and the Pacific region.

Note

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学問的生産性と人的資源開発

有本 章*

科学社会学の父祖ロバート・マートンは1938年の論文で「科学的生産性」の概念を使用した。これは主として日本の教育社会学の領域で継承され、新堀通也の1973年の論文では「学問的生産性」と改鑄されると同時に新たに自然科学に限らず社会科学や人文科学まで幅を広げて使用されるようになった。その後今日まで30年ほどの時間が経過したことになる。その間、学問的生産性は「研究生産性」を主体に学界の学者の活動を図る概念や指標として定着してきた。

学問的生産性は知識の発明発見、伝達、応用、統制などの機能に対応している。具体的には研究、教育、サービス、管理運営などの機能を指す概念である。分析的には、これら各機能に対応して、研究生産性、教育生産性、サービス生産性、管理運営生産性などが区別できる。これら各生産性ごとのアクターは総論的には大学教員であるが、各論的には個々の生産性に即して学者・研究者・科学者、教育者・教師、コンサルタント、管理者などである。

この中で大学の学事を中心を占めるのは研究と教育であり、研究生産性の主たる対象は研究生産物に冠名が施される点でエポニミーとなり、教育生産性の主たる対象は学生や教員の資質開発である点で人的資源となる。知識社会化(KBS1型からKBS2型への移行)への動きがみられる今日は、大学の研究や教育の質的保証が要請され、研究や教育の領域における人的資源開発が大学改革ひいては社会発展の重要な課題になっているとみなされる。本稿は、こうした社会変化、大学改革、人的資源開発の相互関係を重視する視点から、アジアやとりわけ日本の現状や問題点を中心に考察することに主眼を置き、以下のような問題を扱った。

1. 社会変化は各国の高等教育での学問的生産性に競争的な関係をもたらし、競争的な資源配分を通して南北格差が生じている事実がある。留学生や研究者の学問中心地と周縁地への配分はその例証である。この種の南北格差は、基本的には先進国と発展途上国の間に存在し、後者の多いアジアでは頭脳流出が問題になっている。格差は南北にとどまらず日本とアメリカの間の留学生数の不均衡に窺われるごとく北側諸国にも厳然と存在する。
2. グローバル化、知識社会化、市場化の進行は大学の国際競争に拍車をかけ、その中で、知識の再構築、学問的生産性(研究生産性、教育生産性など)の向上が課題となり、とりわけ人的資源開発が焦眉の課題として浮上している。
3. 人的資源の活性化が学士課程と大学院課程の両方において問われる。学士課程教育では大衆化段階が進行し、学生の学力や学習力の低下の問題が各国で生じており、その改革が不可欠である。学生自身の学力を高め、教育の質的保証を行うには、人的資源開発に直接関与する大学教員の訓

* 広島大学高等教育研究開発センター長 / 教授

練やFDに関する責任・義務が欠かせず、その実現の鍵は教授 学習過程のインプット、スルー
プット、アウトプットの改革が具現できるか否かにかかる度合いが大きい。

結論として概要次の点を指摘した。 社会変化に対応して高等教育の質的保証に関する国際競争が激化する中で、実際に高等教育の大衆化によって学力低下を来している学生 = 人的資源の資質開発が重要である。同時に、研究では人的資源の創造性の開発、研究者や科学者の養成が重要である。 広く高等教育の人的資源である教員、職員、学生、管理運営者などの資質開発が課題であり、特にFD = 大学教員資質開発がアーネスト・ボイヤーのいう「学識再考」のレベルで展開されることが不可欠である。 研究生産性では、研究者の頭脳流出を阻止するシステムの構築が必要であり、特に日本では「知識の空洞化現象」“ hollowing-out of the knowledge phenomenon ”をいかに克服するかが問われる。 KBS2では、高等教育における人的資源の開発が研究・教育の両面の生産性の向上を通して社会全体の発展に大きな関係を有することにかんがみ、今後一層の関心が向けられることになる。