Chapter 7
University Teaching: Redesigning the University as an Institution of Teaching

Jung Cheol Shin

7.1 Introduction

Higher learning institutions have a long tradition as teaching institutions. The university as a teaching institution developed further in massified higher education in the USA with the standardization of courses, credit hours, and grading systems (Trow 2005). However, the university as a teaching institution has been diminishing in post-massified higher education because of the strong research orientation among academics. The trend can be observed in many higher education systems in the other parts of the globe, especially in Asia, where the pace of higher education growth is rapid (Shin and Kehm 2013). In East Asia, research is regarded as a sign of "scholarship" and the "world-class" status of a university. This trend is also seen in European countries that have begun to place heavy emphasis on research because of the influence of global ranking systems (e.g., Kehm 2013).

Most global rankings only measure selected outcomes, such as research productivity and international reputation, while disregarding the quality of teaching as argued by Shin (2011a). However, some domestic rankings, such as the *US News* rankings, place considerably more emphasis on teaching quality than on research productivity (for details, see Shin 2011a). Obtaining a high ranking without considering teaching indicators quite possibly results in different outcomes, meaning that universities with high research productivity are actually performing less well in their teaching. An empirical study conducted by Ramsden (1999) found that the top ranked Australian research universities attracted talented students, but offered them poorer teaching.

The US universities have been able to emphasize teaching without losing their status as leading universities, but emerging countries tend to lose the balance between teaching and research (Cummings and Shin 2013). Such a strong research

J.C. Shin (✉)
Department of Education, Seoul National University,
Shillim-Dong, Seoul 151-742, South Korea
e-mail: jcs6205@snu.ac.kr

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orientation as that seen in these countries does not always lift universities to world-class status, although some Asian countries are rapidly succeeding in achieving global ranking status through this strategy (Shin 2013). This chapter discusses what teaching means in post-massified higher education, and investigates how teaching is conducted by academics in different global settings. The chapter analyzes the Changing Academic Profession (CAP) data of 2007 to provide descriptive information on the qualifications of professors, their in-service training, their course content and teaching method, and their class sizes. Finally, this chapter discusses how to realign the university as a teaching institution.

7.2 Post-Massification and Teaching

This section discusses some reasons why the university should be a teaching institution in the post-massification era. In laying the groundwork for this discussion, this section covers student academic preparation levels, the phenomenon of knowledge explosion, professors as teachers, and, finally, the economic environment of higher education.

7.2.1 Teaching and Research in Post-Massification

As discussed in Chap. 2, the modern university has moved through various stages, referred to as elite, mass, and post-massification. During the elite stage, knowledge production was encouraged, but teaching was not. On the other hand, students tended to engage in self-learning because only selected and talented students enrolled at university. In the mass higher education stage, teaching and research are well balanced in the USA. Academics accumulate enough knowledge to teach, but, on the other hand, since the barriers to university have been lowered, students have become increasingly less well prepared for university study. In the mass stage, a university invests heavily in enhancing the quality of teaching, e.g., providing remedial services, establishing a center for teaching, and setting graduation exams.

In the 2000s, most advanced higher education systems entered into the post-massification stage, which means that most college-age students are enrolling in a form of higher education. Students are less academically prepared, but the amount of knowledge available to teach in the classroom is exploding. As a result, the gaps between student preparation and classroom content are becoming wider in many higher education systems. As Trigwell (2011) argues, a critical issue in teaching is the move from how to "teach" students to how to help them "learn." Scholars have begun to use the term "learning" rather than "teaching" (e.g., Trigwell et al. 1999), and student satisfaction has become a major indicator of institutional performance. In the USA, a survey of students' college experience (e.g., College Student Experiences Questionnaire) has been used to improve teaching and service, and

performance-based accountability systems use the student graduation rate as the main measure of institutional performance (Bogue and Hall 2003; Shin 2010). From this perspective, US higher education has been relatively well aligned to teaching in the mass and post-massification stages.

However, other countries which have rapidly entered into the mass and post-massification stages are not well prepared to achieve a healthy balance between teaching and research. These countries expanded their tertiary enrollment rate in a relatively short period of time, while simultaneously significantly increasing research productivity (Shin and Kehm 2013; Cummings and Shin 2013). Their teaching quality is questionable and student satisfaction is not given much regard in setting government policy and university administration. The problem is serious in European higher education because the pace of transformation into mass and post-massification is relatively slower compared to the USA and other regions of the world (Trow 2005). There are positive signs (e.g., Bologna Process) that these countries have begun to recognize the notion of the university as a teaching institution.

The CAP data show how academics perceive their students' academic preparation. In most countries, between 40 % and 50 % of professors agree that their students are not academically well prepared. Professors in the UK (68.2 %) report the highest level of satisfaction with their students' academic preparation, followed by Japan (63.3 %), while most other countries are between 50 % and 60 %.

7.2.2 Student Development Perspective

The current education system is based on the assumption that the psychological development of human beings does not differ from the past. However, the psychological development of students may not be fixed by students' age group, but, rather, by more relative terms considering appropriate comparison with other generations and socioeconomic environment. The physical ages corresponding to the psychological development differs according to their socio, cultural, and geographical distributions. In her comprehensive overview of life cycle development, Austrian (2008) pointed out that most human development theories and empirical studies are based on middle-class, urban, and white male adolescents. This fact implies that the psychological development of college students is affected by their changing family and social environments.

As a result of economic growth and the increase in women's participation in the job market, parents in many countries prefer to have only one or two children, and such changes in the family structure have affected students' sociopsychological development. Parents, especially in Asian society, tend to take care of their children both emotionally and financially until they become college students or even after they have married. The psychological development of human beings has been extended from the first shape to the second shape as shown in Fig. 7.1. The first

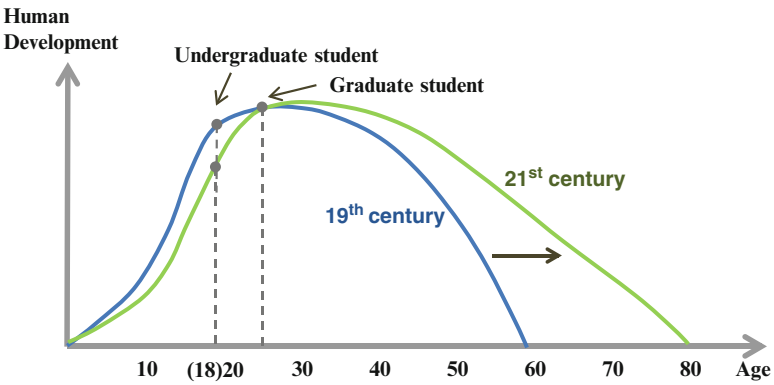

Fig. 7.1 Student development and university education by different life cycles

shape is based on a relatively short life cycle (i.e., age 60 years) and the second shape is close to the current life cycle (age over 80 years). College-age students could be considered as adult in the first shape, but they are in late childhood in the second shape. Considering their life cycle stage and their academic preparation, current college students remain in upper childhood.

The education systems, including the university, were based on perceptions held in the nineteenth century. In Europe, where the modern education systems emerged, the notion of "university" education is different from the upper secondary education. The social meaning of university education is for training social leaders, and university students are regarded differently from upper secondary students. University education according to this metaphor has been considered as the "adult" in our education system. College students are independent from parents and are free to make their own decisions about politics, marriage, and other personal matters. Students may or may not be adults in current society. According to Erikson (1956), college-age students experience an "identity crisis" because they are between childhood and adulthood—"they are no longer children and yet they are not adult" (recited from Wolff 1992, p. 17).

In addition, one can see that the social roles and society's expectation of the same age group differs between the nineteenth and twentieth centuries—the nineteenth-century college students were regarded as being more mature. Human development theory and changing student demographics has led to a discussion on the nature of college education. In the late 1960s, for example, Wolff (1992) argued that, in the early stages of massification, college education should be a bridge from childhood to adulthood and the course content should emphasize the liberal arts to successfully help young people grow into adults. Wolff continued that the liberal arts would ensure "every young person should grow to adulthood with a style of intellect and sensibility which he has freely chosen in order to express his own needs, thoughts, and feelings in an appropriate and spontaneous way" (p. 16).

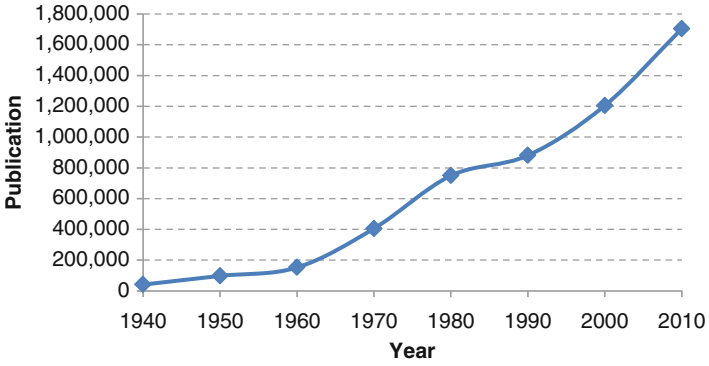

Fig. 7.2 Growth of knowledge production (1940–2010) [Data source: Web of Science. Note: Publication includes "All document types" in the Web of Science (Article, Letter, Review, etc.)]

7.2.3 Knowledge Explosion Perspective

Knowledge has grown exponentially during the past few decades and current society is referred to as the knowledge explosion era. This rapid expansion of knowledge means that students are expected to learn more than ever before. Knowledge is produced and disseminated in more active forms through academic journals, books, newspapers, and especially through various online portal websites which have generated knowledge participation by the public. Wikipedia is a good example of this. Figure 7.2 shows the growth of academic knowledge production in academic journals from 1940 to 2010 in the *Web of Science* database. Knowledge production increased four times from 1960 to 1980, six times to 2000, and eight times to 2010.

With the knowledge explosion, contemporary education systems are confronted with serious challenges. Secondary education was designed to prepare students for a successful life, but secondary education is no longer enough in most societies. Accordingly, the average number of years at school has increased, e.g., up to junior college, a 4-year college, or even graduate education. Shin and Harman (2009) argued that university education is considered "normal," as an upper secondary school education once was. Do students need all this knowledge? The answer to this question is related to the question as to what schools should teach. It could be discipline-based knowledge, or it could be how to search, organize, and use the knowledge. There have been many discussions in academic circles about "knowledge" in the knowledge society.

According to Gibbons and his colleagues (1994), schools should not attempt to teach all the knowledge produced, but, instead, teach students how to search, reorganize, and use the knowledge. Although discipline-based knowledge is a basic form of knowledge, relatively little weight is given to disciplinary knowledge in the knowledge society. Accordingly, academics in the field of education have begun to discuss what should be taught in the knowledge society. There are more

initiatives in the fields of "education." For example, a group of science education scholars discussed what should be taught in science education (e.g., Harding and Vining 1997). Their conclusion is along the same lines as that of Gibbons and his colleagues. Schools cannot teach all the knowledge that is produced by scientists. It is the same situation in other subject areas, including the social sciences and humanities.

A group of scholars (e.g., Hutchins 1953; Newman 1912) have argued that the college curriculum should focus on the liberal arts in this era of knowledge explosion. For example, Gray (2012) emphasized liberal arts education as the substance of higher education. Another group of scholars have paid attention to competence as one of the goals of education. The competency perspective has been developed to educate adult learners in the USA and in Europe. According to these scholars (e.g., Holmes and Hooper 2000; Illeris 2008), discipline-based knowledge is meaningful only if the knowledge contributes to developing student competency. Disciplinary subjects are regarded as a tool for training and developing student competency, rather than placing the goal of education as obtaining the subject knowledge itself. Even if how to develop true competency is still under discussion, the competency approach has won as a major indicator for many college students and employers.

Industries used to require industry-specific skills, but this has been changing because of the development of high-tech industry and the automation of production, which has simplified employees' manual work. Industries require only a small number of technicians or researchers with a high level of technology or research skills; on the other hand, these industries demand their employees to have a well-developed general competency. This change explains why, in many countries, including the UK and the USA, vocational training programs are not always successful (e.g., Wolf 2002). In this context, education systems that focus on job-specific skills for vocational training may not fit well in a high-tech-oriented knowledge society. Instead, the education systems that encourage broader knowledge and/or competency are more competitive in the knowledge society (OECD 2005). Employers have stronger preferences for applicants who have leadership qualities, communication skills, and a sense of humor, rather than job-specific skills and subject knowledge alone (e.g., Lim 2008; Heneman and Ledford 1998).

The knowledge explosion and related educational responses have led to a discussion on education systems, especially in relation to university education. If we agree with the concept of "network knowledge" by Gibbons and his colleagues, philosophers' views on college education, or the competency perspective, then it is clear that the discipline knowledge-based university education is losing its ground. In its place, this new approach encourages the redesign of college education.

7.2.4 Professorial Roles: Teaching or Research

Current university systems are based on the research-led teaching approach. The approach assumes that good researchers are good teachers, and teaching and

research mutually reinforce each other. When the modern university systems were established, the assumption was true because excellent researchers could be better teachers. However, in the knowledge explosion society, the critical issue in teaching is not whether a professor knows better knowledge or not; rather, how to select teaching content and how to reorganize the content in classroom contexts are more important than how much they know. Reflecting this change, universities began to emphasize curriculum development and institutional methods for better teaching. This is important in post-massification, where students are less prepared than their peers in elite stages. The changes lead to shifts of the professors' roles in the university. Although some highly reputed universities expect their professors to carry out cutting-edge research, many other universities expect their professors to deliver high-quality teaching.

In post-massification, the positive nexus between teaching and research is challenged by many empirical studies. These studies found that research has near-zero association with teaching (e.g., Marsh and Hattie 2002), and even a negative association is reported (e.g., Shin 2011b). When professors teach disciplinary knowledge, research-productive professors provide better teaching; on the other hand, teaching became independent from research when students are less prepared and knowledge is exploding in post-massification. When a university emphasizes research, professors tend to reduce their time for preparing course materials, reorganizing class contents, and student contact hours. As a result, research has a conflicting nexus with teaching in post-massification. Although many academics could become cautious on this finding, it makes sense in contemporary university education. According to these studies, research-driven teaching does not work in universities, especially at the undergraduate level.

Reflecting these practices, some countries have already changed their systems from research-driven teaching systems to the division of labor between teaching and research (Schimank and Winnes 2000). US higher education systems adopted the division of labor between universities through its mission classification systems, and also between undergraduate and graduate education. For example, research-productive professors teach graduate courses and conduct research, while teaching-efficient professors deliver more courses for undergraduate students. The division of labor enables US universities to be globally competitive in both teaching and research. Recently, the UK and the Netherlands adopted the division of labor between professors through funding schemes, evaluation schemes, and workload assignments between teaching-efficient professors and research-productive professors (Leisyte et al. 2009). This issue is becoming policy agenda in many other higher education systems, such as those in Korea.

In sum, students are lagging in psychological development during their life span, teaching contents weigh more on competency than disciplinary knowledge, and research-productive professors no longer provide high-quality teaching. These phenomena request that old university systems be fundamentally reformed because they have lost their logical and empirical grounds following post-massification. The reform should be fundamental and accompany structural changes. In addition, the reforms are not limited to university education only; rather, the changes are closely related to education systems in general.

7.2.5 *Economic Crisis, Public Funding, and University Teaching*

As well as the three logics to reform university education, the fundamental changes are supported by the economic situation in many countries. Many countries started cutting their budgets in recent economic crises and began to charge or increase student tuition fees (Johnstone and Marcucci 2010). When a university applies a research-driven teaching model, especially for undergraduate education, it is accompanied by high costs because research is a very expensive activity. The unit cost for teaching in a research-focused university is much higher than that in a teaching-focused university (Altbach 2004; Middaugh et al. 2003). Nevertheless, many universities began to join the global competition for research to enhance their ranking status, along with the accompanying high costs.

Unfortunately, however, states do not have enough funding sources to support the increased costs (e.g., Ehrenberg 2002). With a growing aged population, expenditure on welfare and health are becoming a serious social problem in many countries. When the education budget is competing with social welfare and national defense, education, especially higher education, often does not have priority in the economic crisis. The situation may not improve in the short term either, because the current economic crisis is likely to become a regular event in the global economy. The economic cycle used to form over a longer term in the past, but we have been experiencing frequent economic crises over the last few years. Given this condition, public expenditure for higher education is not likely to expand.

On the other hand, states have been aggressively investing their resources in research and development (R&D). The R&D investments are remarkable in the countries with rapid economic growth, such as Korea, China, Taiwan, Singapore, and Japan. Policymakers tend to perceive R&D as the source of national competitiveness and economic growth. R&D investment has been a significant source of university revenues. R&D expenditure is the main source for providing assistantships for graduate students, constructing a new building and new labs, and hiring new faculty (e.g., Ehrenberg 2002).

However, undergraduate students receive little benefit from the R&D of their university. Professors have begun teaching fewer undergraduate courses and their availability to meet with undergraduate students is decreasing. Universities began to pay high salaries to hire research-productive professors, and most of them tend not to teach undergraduate courses. On the other hand, the increased R&D brings with it financial burden to a university because it does not pay for the operational budget in many countries. As a result, the increased R&D gives rise to increased student tuition fees. Within the budget structure, undergraduate students pay a similar share of the costs as graduate students to support R&D in their university.

In sum, public funding for higher education is declining in economic crises, but the costs of research and global competition are increasing. In addition, national policy to increase investment in R&D accompanies high financial burden for the university's operational budget. To complement financial shortage, universities

tend to adopt student tuition fees (e.g., European countries) or increase tuition fees (USA, UK, Japan, Korea, and many other countries) to pay for the increased expenditure. The increase of tuition fees is a sensitive policy issue in many countries. In this context, the division of education programs for each undergraduate and graduate course is recommended, so that the undergraduate programs focus more on education, while the graduate programs focus more on research.

7.3 University as an Institution of Teaching

7.3.1 University Teaching Across Systems

The following discussion briefly introduces the current university education systems in six selected countries—USA, UK, Australia, Germany, Japan, and Korea. The data for this discussion have been extracted from an international comparative study of the CAP. Although the CAP data do not directly measure education systems, academics' perceptions represent education systems to some extent. Other than the perceptual data, it is quite difficult to extract education practices in reality.

There are distinctive features across systems in their academic units, teaching content and focus, instructional methods, academics' preparation for teaching, contact with students, and preparations. Table 7.1 shows how these differ across systems. In general, the USA, the UK, and Australia are at one end of the continuum and Germany, Japan, and Korea are at the other. The differences between systems are quite similar to the typology developed by other higher education scholars—e.g., Clark (1983), Ben-David (1977), and Cummings (2003). The German system of higher education has been focused on research since the establishment of Berlin University in 1810. The German model was imported by the Japanese imperial universities in the late 1800s, and the Japanese model was implanted into Korean universities during the colonial period.

The German system, including the Japanese and Korean systems, emphasizes research and puts less focus on teaching. For example, these systems place more emphasis on discipline-based content and less on values and ethics in a general sense in their classroom discussion. Instructors rely heavily on lecturing and less on individualized teaching. Academics spend less time preparing their class teaching materials and they do not pay much attention to curriculum development. In addition, they do not frequently communicate with their students. Although there is not a complete alignment, Table 7.1 represents the general tendency of the German system and its brother systems in Japan and Korea. Because the systems emphasize research, a higher percentage of the academics in these systems hold Ph. D.'s and a lower proportion of them have had experiences in practical fields other than academic jobs (professor or researcher).

Table 7.1 Comparisons of university education for different countries

	USA	UK	Australia	Germany	Japan	Korea
Academic units	Flexible	Flexible	Flexible	Subdiscipline-based	Subdiscipline-based	Subdiscipline-based
Focus of content	Practical knowledge > 70 % Values and ethics > 70 %	Practical knowledge < 70 % Values and ethics > 70 %	Practical knowledge > 70 % Values and ethics >70 %	Practical knowledge > 70 % Values and ethics < 70 %	Practical knowledge < 70 % Values and ethics < 70 %	Practical knowledge > 70 % Values and ethics < 70 %
Preferred instructional method (over 70 %)	Lecturing Individualized	Lecturing Individualized	Lecturing Individualized	Lecturing	Lecturing Individualized	Lecturing
Class size	Less than 50 students	50–100 students	Over 100 students	50–100 students	50–100 students	Less than 50 students
Training course for teaching	Over 50 %	Less than 50 %	Over 50 %	Less than 50 %	Less than 50 %	Less than 50 %
Course preparation: participating in course material and curriculum development activities	Materials dev. > 70 % Curriculum dev. > 70 %	Materials > 70 % Curriculum dev. > 70 %	Materials > 70 % Curriculum dev. > 70 %	Materials > 70 % Curriculum dev. > 70 %	Materials < 70 % Curriculum dev. < 70 %	Materials > 70 % Curriculum dev. < 70 %
Interaction with students: out of class/electronic communication	Out of class > 70 % Electronic > 70 %	Out of class > 70 % Electronic > 70 %	Out of class > 70 % Electronic > 70 %	Out of class < 70 % Electronic < 70 %	Out of class < 70 % Electronic < 70 %	Out of class > 70 % Electronic < 70 %
Qualification of professors	Ph.D. > 70 % Practical exp. > 30 %	Ph.D. < 70 % Practical exp. > 30 %	Ph.D. < 70 % Practical exp. > 30 %	Ph.D. > 70 % Practical exp. < 30 %	Ph.D. > 70 % Practical exp. < 30 %	Ph.D. > 70 % Practical exp. < 30 %

Data source: The Changing Academic Profession (CAP)

Note: The values are the average percentages of academics that agree or strongly agree with the survey items

On the other hand, the US and UK systems, including Australia, share similarities. The US systems emphasize finding a balance between teaching and research, and teaching for undergraduate education and research for graduate education. They teach liberal arts and emphasize values and ethics in a general sense in their classroom. Professors use individualized teaching methods as well as lecturing, are well prepared for their classroom teaching, and communicate with their students out of the classroom. The academics in the US systems, including the UK and Australia, are more likely to have had experiences in fields other than academia and a smaller proportion of them hold Ph.D.'s compared to their peers in the German system.

7.3.2 University as a Teaching Institution

This section focuses on how to restructure the university as a social institution of teaching. A brief overview of the historical development of teaching and research shows how the university has developed its functions of teaching and research. This section proposes a way to restructure the university as a teaching institution by reforming university systems.

Two Layers: Undergraduate Education and Graduate Education

The university was considered as a place for higher learning and a university degree was considered to be the final degree for intellectuals (Clark 1983). University graduates used to be specialists in their discipline areas in European higher education. Although European countries have long had advanced degree programs, it is quite different from that of the USA. Advanced degree programs in Europe used to be based on seminars rather than coursework, which is the standard format of US universities. On the other hand, graduate education has been regarded as a place for professional training and to educate intellectuals in the USA.

Historically, undergraduate education was not considered a lower layer of graduate education in the USA (Ben-David 1977). Instead, graduate education was used as a means to establish the German research university model in the USA, where graduate education focused on research and training professionals and academic researchers. When the Johns Hopkins University was established in 1876, it started with graduate programs only, and, in that respect, it stood out from other US universities. Since the establishment of Johns Hopkins, many other universities have added the research function as a form of graduate education, and undergraduate education has gradually become a preparatory course to pursue graduate education (Ben-David 1977). The relationship was relatively natural in the USA, where undergraduate education was based on liberal arts and graduate education on discipline knowledge and professional training.

On the other hand, disciplinary education and professional training was completed at university level (diploma level) and liberal arts education at upper secondary education in Europe. The Abitur in Germany and the Baccalaureate in France are the final assessments to test student achievement in liberal arts (Cummings 2003). In Europe, the hierarchy between upper secondary and university education was clear, but the hierarchy between first university degree and advanced degree was somewhat different from the distinction between upper secondary and university education (diploma level). The linkages between "upper secondary," "university," and "advanced degree (PhD)" education is challenged by adopting the American notions of bachelor's (undergraduate), master's, and Ph.D. since the Bologna Process in 1999.

A university education used to consist of advanced disciplinary knowledge leading to professional jobs, and was considered the highest intellectual training available in European countries. It was available to a very limited number of upper secondary school graduates. However, in massified higher education, university education should be repositioned between upper secondary and advanced degree programs. The university education (currently, bachelor degree program) might cover liberal arts (at an advanced level) and disciplinary knowledge (at an introductory level). These realignments are important in the non-American higher education systems, where the mission differentiations between undergraduate and graduate education are not clear. In the non-American higher education systems, academics who are in charge of undergraduate education teach disciplinary knowledge to their undergraduate students. In these contexts, realigning the mission differentiation between undergraduate and graduate education is a critical task.

Undergraduate Education as a System of "Education"

The core discussion point for this section is the question of how to position undergraduate education (bachelor programs) within the whole education system. Undergraduate education lies between upper secondary and graduate education. In massified higher education such as in the USA, university education focuses on the liberal arts, which are not completed during upper secondary education. Although college students are in their major disciplines, many students major in more than one discipline and the disciplinary training focuses on introductory levels rather than on in-depth knowledge. This type of education is considered a period of exploration to prepare for professional training during the graduate programs, such as medical school, law school, and business school.

The US approach appears more aligned with the stages of student development in post-massified higher education. The US approach is also supported by how to learn and teach knowledge in the era of knowledge explosion. As has been discussed, it is not recommended that the university teach undergraduate students deeply on specific disciplinary knowledge, but, instead, focus on transferring ways for students to search and use knowledge proactively, and on building student competency. Massified higher education is not designed to train for professional jobs or to teach disciplinary knowledge to undergraduate students. US education

enables teaching-efficient professors to focus on undergraduate courses and research-productive professors to concentrate on graduate programs. The division of labor between teaching-efficient and research-productive professors enables US higher education to be competitive globally, even though US higher education is highly massified (e.g., Shin and Kehm 2013; Trow 2005).

The division of labor possibly lowers college costs and may provide an efficient education service. The approach is more cost-effective because professors teach more courses when their main job is defined as teaching and they are evaluated on their teaching quality (Shin 2011b). Academic units are more flexible in the USA than the discipline-based systems, so that colleges can organize courses depending on student demands and course characteristics. The costs for administration and instruction can be economized as well by saving the cost of conducting research, which is not necessarily required for undergraduate education. Although professors who mainly teach undergraduate courses conduct research, their research might be relevant to "education" in terms of its content or its implications.

Restructuring of Undergraduate Education

As discussed, the US systems as well as those in the UK and Australia are well placed to educate undergraduate students. In addition, these systems reflect their effectiveness in the global rankings too. On the other hand, the German systems are relatively less focused on undergraduate education (or first degree education) and are less well represented in global research competition. In terms of research, there is a serious language barrier for non-English-speaking countries and the bibliometric data overestimate the contributions of systems with strong empirical research traditions in certain countries, such as the USA, the UK, and Australia (e.g., van Raan et al. 2011). Low-quality teaching cannot be blamed on these factors however. The following implications are based on our discussions for restructuring undergraduate education.

First of all, undergraduate education might be organized separately from graduate education. I suggest that the curricula should be restructured and reorganized according to students' developmental stages and be taught by teaching-efficient professors. In the massified systems, undergraduate education should be more flexible in their academic units, and their curriculum should be based on the liberal arts and be taught at the introductory level of major areas, rather than detailed disciplinary knowledge. In addition, instructional methods should be more student-centered.

Second, undergraduate education might be considered as a part of normal education, and the logic underlying the funding of undergraduate education should be similar to that for upper secondary education. This would ensure steady financial security from public expenditure for undergraduate education without fluctuations during economic cycles. In addition, the class size for undergraduate education should be flexible, determined by class content, instructional method, student motivation, and so on. A flexible class size will enable universities to lower costs and decrease student tuition fees.

Third, undergraduate courses should be taught by teaching-efficient professors who are talented teachers. Current systems, especially the German system and its brother systems, are mainly focused on hiring research-productive academics, but this policy does not benefit undergraduate students. I also recommend that university administrators develop different types of faculty evaluation systems (e.g., teaching-focused or research-focused) and encourage professors to choose one of the tracks, depending on their academic orientation. In addition, universities are recommended to place emphasis on field experience as a faculty hiring criterion.

7.4 Conclusion

In the modern university development in the USA, both teaching and research are well coordinated by the dual organizational format of undergraduate and graduate education. The combination of teaching and research may be the main reason why the US university has maintained its global status for so long. However, on the other hand, some other higher education systems are struggling with balancing teaching and research. The problem is even more serious in the developing higher education systems, e.g., in many Asian higher education systems, although these countries are rapidly growing in their tertiary enrollment and academic productivity. Nevertheless, these universities are actively involved in the global ranking competition, which leads to a strong research orientation. Considering the decoupling of teaching and research in the post-massification stage, the strong research orientation causes enormous problems for university "education," especially for undergraduate programs.

As a way of combining both teaching and research in a university, this chapter discussed how to restructure the university by realigning undergraduate and graduate education. The chapter proposed to assign teaching-efficient professors to teach more undergraduate courses and charge lower tuition fees for the undergraduate students, so that the cost transfer from graduate to undergraduate students can be prevented. Further discussion is needed on how to situate undergraduate and graduate programs differently and a thorough understanding of the distinctive differences and characteristics of these two layers will be crucial in order to offer practical suggestions.

In this regard, our future research will seek to understand the different characteristics of undergraduate and graduate students, e.g., their demographics, psychological development, and social relationships. Further, we need to understand the differences in the characteristics between academics, based on their preferences for teaching, research, or service. This empirical research will provide theoretical and practical grounds for redesigning undergraduate and graduate education differently, based on students' sociopsychological characteristics, as well as professors' preferences and their competencies.

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