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Beyond Humboldt? The Relationship Between Teaching and Research in European University Systems

How are teaching and research related to each other in European university systems? And how has this changed in the last decades? These two questions are the subject of this article, and we want to deal with them with respect to the following countries: France, Germany, Hungary, Iceland, Ireland, Italy, the Netherlands, Norway, Spain, Sweden, and the United Kingdom.¹ Lack of data, and of space prevents analysis of any country in depth. For most countries, we can only point out selected aspects. But we think it is possible to categorise each country roughly, and to point out significant similarities and dissimilarities among them. Our focus is on the consequences of the detected structures and developments on research – which, of course, does not mean that we deny the importance of the universities' teaching mission.

Our topic has been a central one in discussions about universities since the beginning of the nineteenth century when Wilhelm von Humboldt conceived the “*unity of teaching and research*” as the centerpiece of his new idea of a university which was implemented at first in Berlin, and soon after in a number of other German universities. Many other countries followed the German model. Since universities had been teaching institutions before Humboldt, his conception boiled down to bring research into universities without throwing out teaching. Analytically, three different patterns of the relationship between teaching and research can be distinguished according to the *kind and degree of structural differentiation* of both tasks – and all three patterns diverge from Humboldt's initial idea: (← p. 397)

- *Humboldt's idea* postulates a total *renunciation of differentiation*. The same activity of professors should be research as well as teaching.

¹ Our empirical data are mainly from two collaborative research projects: one on „Public Sector Research in Transition“ sponsored by the TSER program of the EU, and another one on „Employment and Working Conditions of Academic Staff in Europe“ sponsored by the German Gewerkschaft Erziehung und Wissenschaft and the German federal ministry responsible for education, research, and technology. A number of unpublished papers from these two projects are quoted here.

- The *Humboldtian pattern* institutionalised in Germany and other countries is a *situational differentiation* of both tasks. There are different situations in university life devoted to teaching, on the one hand, and research, on the other.
- A *post-Humboldtian pattern* towards which some European countries such as the United Kingdom seem to move establishes a *differentiation of roles and/or organisations and/or resources* for teaching and research. Thus, it goes farther than the Humboldtian pattern in terms of differentiation.
- Finally, there still exists in some countries, most prominently in France, a *pre-Humboldtian pattern* which establishes an even greater differentiation of teaching and research than the post-Humboldtian one. The pre-Humboldtian pattern maintains the *sub-systemic differentiation* of both tasks in separated spheres of society. According to Humboldt's idea, and in the other two patterns universities are organisations which belong both to the educational and to the science system. In the pre-Humboldtian pattern, in contrast, universities are primarily devoted to teaching and hence, belong only to the educational system whereas research takes place outside of the universities in academies or institutes belonging only to the science system.

This analytical typology already suggests a complicated story. Humboldt's idea of a zero differentiation of teaching and research was a reaction to the very strong differentiation of both tasks in universities of the pre-Humboldtian pattern. Humboldt's idea became reality in the less radical version of the Humboldtian pattern which made its way into many European university systems. Besides, in some other countries the pre-Humboldtian pattern was upheld. Eventually, during the last decades a new pattern, the post-Humboldtian one, has emerged – possibly as a reaction to problems of either the Humboldtian or the pre-Humboldtian pattern.

As already said, we will not go into historical investigations but deal with recent developments. The starting-point of our cross-country comparison are some well-known *common challenges of European university systems after World War II*. Most important has been the transition from a relatively closed elite system to a more or less open system of *mass higher education* bringing with it a strong expansion of universities and other institutions of tertiary education (Gellert 1993b). While in the 1950s about 5% of the relevant age cohort went to institutions of higher learning, participation rates exceeded 20% in the 1990s in most countries. In France, Germany, Italy and the Scandinavian countries this figure reached as high as 30% and will most

probably grow even higher. During the 1960s and 1970s, staff and public support for existing universities were massively increased, and many new universities were founded. In addition, short-cycle and practice-oriented study courses were introduced or expanded (OECD 1991). Partly, this was achieved by a diversification of study programs within universities, partly by upgrading existing institutions of vocational training to the tertiary level or by the establishment of new higher education institutions such as polytechnics or colleges focussing on undergraduate teaching and vocational training.

This period of growth, however, has been replaced by an ongoing *period of scarcity* – in many countries since the end of the 1970s, and everywhere during the 1990s (OECD 1997: 60-73). Student numbers, in contrast, have kept on growing until today (OECD 1997: 142). Accordingly, teaching loads have increased, and at the same time complaints about decreasing quality of teaching have become louder. It is certainly no daring supposition that in the majority of countries where universities not only have a teaching mission but also an equally important research mission, these problems of teaching must have had significant dysfunctional spillover effects on research. Tensions between teaching and research must have increased (OECD 1990) – and this may have brought about attempts to change the institutional pattern of the relationship between both tasks.

In other countries such as France, where universities traditionally have been primarily devoted to teaching, one should suppose that such tensions have not arisen, and, accordingly, the institutional pattern of the relationship between teaching and research (**← p. 398**) should not have been shattered. However, this remains to be seen; and in addition, other deficiencies, originating from a too strong separation of both tasks, might have appeared there. Thus, in all countries we studied the relationship between teaching and research merits attention. And in fact, it has been an important issue of university reform everywhere since the 1960s.

1 Sticking to the Humboldtian Pattern: Germany and Italy

We will start our investigation with the Humboldtian pattern which originated in *Germany*, as already mentioned, with the founding of the university of Berlin at the

beginning of the 19th century (Turner 1980; Mc Clelland 1980). Universities were no longer understood as vocational schools for professional training and mere repositories of received knowledge. Instead, the new idea of the university was based on the advancement of knowledge through research. As a consequence, the imparting of skills and competencies for independent thought and scientific inquiry became the new principle of teaching.

The “unity of teaching and research” was a logical consequence. This principle radically transformed the roles of professors and students and their relationship to each other. As it was understood by Humboldt, both were regarded as equal participants in the search for truth, although on different levels of knowledge and skills. The professor was supposed to introduce students into the principles, methods and techniques of scientific problem-solving through research-based teaching while students should learn by watching the professor doing his research, and by participating in it. Thus, “unity of research and teaching” meant that both tasks should be done simultaneously. This presupposed that each professor carried out research - which had not been the case before.

Reality never had much to do with this Humboldtian ideal (Rau 1993). Increasing specialisation within the natural sciences did away with this conception already in the last century, and with the huge student numbers nowadays some of the teaching for advanced students at best has stronger links to a professor’s actual research work. Still, according to the Wissenschaftsrat (1996: 28), the German national advisory and coordination body for science policy, the „unity of research and teaching“ still remains the „guiding idea of the university“. Its main element today is the postulate that professors should do both teaching and research, but not at the same time. Both tasks are differentiated in terms of situations. Teaching takes place in seminars and lectures, research in the laboratory and at the writing desk. Professors are supposed to devote about the same amount of time to both tasks. Thus, teaching and research are integrated, firstly, within the role of the professor, as well as within the roles of most other scientific staff members at universities. Secondly, to underline this both tasks are integrated financially. The most important segment of financial resources, the block grants from government to the universities, are a common resource pool for teaching and research. Although a significant amount of financial resources for research are separately budgeted funds, block grants are supposed to provide „floor-funding“

(Grundausrüstung) for research in terms of infrastructure, salaries for some of the scientific and technical staff, and current expenditures.

In Germany as in other countries following the Humboldtian pattern this *integration of research and teaching at the level of organisations, roles and resources* is advantageous to research as long as universities expand in reaction to an increased demand for teaching. Then, research is promoted as a side-effect of paying attention to the needs of teaching. Additional infrastructure, staff and funds that are provided primarily to enlarge teaching capacities also benefit research (Schimank 1995: 46-55). But whenever a huge increase of student numbers occurs at the same time that government is unwilling or unable to increase resources accordingly, university research in countries following the Humboldtian pattern is threatened by *marginalisation and emigration*. Marginalisation happens because no formal regulations or organisational mechanisms exist to prevent a shift of working time and resources from research to teaching (Schimank 1995: 90-95). This „crowding out“ of research by teaching is accompanied by a „driving out“ into extra-university research institutes. If research conditions at universities are worsening because they are overloaded with teaching, it becomes attractive for research policy to establish research institutes outside universities.

Exactly these two negative effects of the Humboldtian pattern have dominated in Germany since the mid-1970s (Schimank 1995). Since that time until today the number of students at universities almost doubled, whereas the number of academic staff and financial resources increased only slightly. It is true that professors' time for research has not decreased. But on the one hand, this has only been achieved by shifting some of their teaching load to their assistants. On the other hand, the research activities of professors have changed. More and more of professors' time and energy is needed for the acquisition of separately budgeted funds to compensate at least partly the resource losses which university research had to suffer because an increasing share of the block grants is consumed by teaching. But this soon turned out to be a rat race with decreasing chances of success; and the actual research work is increasingly done by inexperienced young scientists whom the professors can only inadequately instruct and supervise.

Thus, the Humboldtian pattern turns out to be highly detrimental to research under conditions which have been common to many European countries since the mid-1970s. German policy-makers and science administrators have conceived many

measures to (← p. 399) adapt the German universities to the new realities of mass higher education and scarce resources (Wissenschaftsrat 1979; 1988: 82-89; 1996: 28-30). The general objective of these reforms is the introduction of short-cycle and vocational study programs for the bulk of students - based on the assumption that most students are interested in a professional qualification, and not in becoming researchers. In the long run a "unity of research and teaching" would be confined mainly to graduate and postgraduate study programs. Furthermore, the organisation and financing of research would be de-coupled from teaching.

The implementation of these policy goals would constitute a major break with the Humboldtian pattern. On the one hand, a majority of professors would mainly have to work in undergraduate and vocationally-oriented teaching and dispose only of a minimum level of research infrastructure, funds and staff. On the other hand, a minority of professors, enjoying reduced teaching duties and privileged funding, would be able to focus on graduate and postgraduate training and research (Wissenschaftsrat 1979: 22-23/29-31). This differentiation of roles and resources is supposed to be organised on a rotating and competitive basis in order to prevent the development of a rigid and permanent separation of "teaching professors" and "research professors".

These suggestions have met firm opposition from most professors. They regard short-term and vocational courses as „unscientific“ and “second-class endeavours“. Whereas proposals for a differentiation of roles for teaching and research have not yet been realised, an organisational differentiation of both tasks indeed was established in the 1970s, but has not turned out to be very successful. Former vocational schools, primarily for engineering, administrative and social professions, were reorganised and upgraded into a second sector of the higher education system focusing on short-term, vocational programs. These Fachhochschulen („colleges for advanced professional training“) have teaching as their predominant mission. However, the plan to make them an alternative place of study for many students, so as to reduce the universities' teaching load has failed. The intended disciplinary and capacity expansion of the Fachhochschulen has not been realised (Wissenschaftsrat 1993: 16). Although total enrolments more than tripled since the mid-1970s, Fachhochschulen still account for only a quarter of all students. Thus, universities have had to bear the main burden of exploding student numbers.

Universities themselves have contributed to this unfavourable development. In times of stagnating public budgets, universities have been successful in resisting a

redistribution of resources for a forced expansion of Fachhochschulen. The unintended result has been that access restrictions were established for most study programs at Fachhochschulen to prevent a collapse. Rejected applicants then turned to universities where the government refused a similar strict numerus clausus for political reasons. Another cause of this development is the lesser social prestige of diplomas from Fachhochschulen. Many students, therefore, still prefer university studies because of the better career opportunities offered.

Not only have Fachhochschulen been unable to provide relief for universities. In addition they have been subject to considerable “academic drift”. Due to its privileges and prestige, the university model provides the point of reference for the Fachhochschulen. Significantly, the Fachhochschulen now prefer to call themselves “universities of applied sciences”. Professors at Fachhochschulen demand at least a partial alignment of working conditions and salaries towards that of university professors. They focus their demands on a reduction of teaching hours and the provision of infrastructure, staff and institutional funding for research. In addition, Fachhochschulen lobby for the right to offer postgraduate programs and to award doctoral degrees. Thus, instead of the initially intended institutional differentiation between universities and Fachhochschulen to benefit the research function of the former, a gradual convergence has taken place.

Comparing this not very optimistic analysis of the German situation to *Italy* brings some variance into our picture of the Humboldtian pattern. Research at Italian universities was even worse off than in Germany until the 1980s. Since then, however, conditions have changed somewhat for the better, and this might even continue in future.

The Italian university system was reorganised in the middle of the 19th century according to Humboldtian principles. However, the emphasis on the research function has always been weaker than in Germany, and Italian universities could never rely on such a well-equipped and well-funded research infrastructure as in Germany. The Italian university system has been widely available to students,² earlier than in other European countries. The universities - already understaffed and underfinanced – within a few years were confronted with rapidly rising enrolments and with even more dramatic problems than in Germany (Moscati 1999). In addition, there were fewer

²²² In fact, it is the most liberal system of all countries studied. Everyone having spent at least five years in secondary education acquires the unrestricted right to university entrance.

opportunities to compensate at least partially for the lack of institutional resources for research by the acquisition of separately budgeted funds (Berning 1988: 188-192; Moscati 1993: 75). Research was also harmed by the inadequate production and training of researchers. Until 1980 no graduate and postgraduate programs for research training or higher academic degrees like the Ph.D or the habilitation existed which could have served as a basis for a research-oriented recruitment and promotion system (Moscati 1993: 75). Moreover, Italy (**← p. 400**) had almost no differentiation of study programs in higher education (Berning 1988: 30-38).

Only in the 1980s when universities threatened to collapse from overcrowding, and the quality of teaching, and especially research, had declined to an alarming level did the Italian government take measures to improve the situation. In 1980, a three-year postgraduate program leading to a research doctorate as a credential of scientific qualification was set up. From then on, professors were to be primarily recruited from the graduates of this program in order to improve the quality of university teaching and to increase the number of research-oriented professors. A new university law in 1982 started to break up the „monolithic“ structure of university studies with the introduction of short-cycle programs leading in two or three years to a professional diploma. Lacking the tradition and the resources for establishing a separate sector of colleges and polytechnics as in other countries, meanwhile a gradual internal differentiation of universities into a first tier concentrating on undergraduate and vocational teaching and a second tier focusing on advanced and graduate training was seen as the only realistic strategy of reform (Berning 1988: 50-51). However, this strategy has been confronted with the same problem as in Germany. Departments and professors resist a downgrading to teaching-only work, and capacities for short-cycle programs are still low.

The 1982 university law also confirmed the role of universities as the „privileged place of scientific research“ in Italy and took measures to improve research conditions. Reform of university staff structure created a new group of *ricercatori* (“researchers”) which substituted for the former assistants. The *ricercatori* have reduced teaching obligations in order to get more time for research. The number of hours per annum they have to devote to teaching is strictly delimited to prevent their exploitation by the professors who in former times shifted their own teaching load on their assistants – which still happens today, but probably not as excessively as before (Moscati 1999: 16, 22/23). Furthermore, a new financing system was established which separated

funds for research from those for teaching. Every three years professors and researchers have to submit a research report; and 60% of the research funds for universities are distributed to the individual universities according to these reports and to applications of their staff. Finally, funding agencies for separately budgeted funds have been equipped with more resources to distribute to university research.

Some of these reforms within the Italian university system are corrections within the traditional Humboldtian pattern; some, however, might move beyond it and towards a post-Humboldtian pattern – a direction other European countries took earlier and with more determination.

2 On the Way Towards a Post-Humboldtian Pattern: United Kingdom, the Netherlands, Sweden, and Norway

To put it in a nutshell, the traditional Humboldtian pattern consists of an overall institutional framework in which

- most *roles* at the universities – especially the dominant role of professor - are not differentiated according to teaching and research,
- most financial *resources* of universities – especially institutional funding - are a common pool for both tasks,³
- and most *organisations* – and the dominant ones´ - within the higher education system are universities with the double mission of teaching and research.

Accordingly, three paths for differentiating teaching and research may lead, as alternative or parallel routes, to a post-Humboldtian pattern: increasing differentiation between teaching and research at the level of roles, at the level of resources, or at the level of organisations.

We start our investigation of countries heading towards this pattern with the *United Kingdom*. At the beginning of the 1980s, the situation there was quite similar to

³ Actually, only two instances of significant differentiation, tightly connected with each other, have been institutionalised in Germany: the role of research collaborator working in a project financed by separately budgeted funds and the role of Akademischer Rat (lecturer) – the latter to be discussed later. But these cases of a differentiation of research within universities remain strictly confined within the Humboldtian pattern.

Germany with respect to the relationship between teaching and research (Kogan 1993: 49-50). The “unity of teaching and research” had been deliberately strengthened in the 1960s. A number of new universities had received infrastructure and support to build up their research capacity as a counterweight to the traditional concentration of research and graduate education at Oxbridge (Shattock 1991: 48/49). The United Kingdom also had established already in the 1950s and 1960s a non-university sector of higher education, the so-called „public institutions“ led by thirty polytechnics. Since the 1970s more than half of the students have been enrolled at these institutions which focus on short-cycle courses and professional training. In contrast to German Fachhochschulen, though, polytechnics from the beginning had been allowed to offer full academic and (← p. 401) research degree programs and to carry out research. Thus, no organisational differentiation of teaching and research within higher education was intended. However, most of them lacked infrastructure and resources to compete with universities in research and graduate programs (Henkel/Kogan 1993).

Since the end of the 1970s the British higher education system has been subjected to radical changes. Especially the relatively comfortable situation of universities ended abruptly, whereas polytechnics could partly benefit from reforms (Kogan 1993: 49). Drastic resource cutbacks urged the University Grants Committee (UGC) which distributed block grants from government to the universities to introduce a new model of resource allocation in 1985 which separated expenditures for teaching and research (Williams 1997; Senker 1998). While a general component is calculated mainly on the basis of student numbers, the other component of the block grants dedicated only to research is dependent on the volume of separately budgeted funds acquired, especially Research Council grants, and quality evaluation by peer review. Every three or four years a Research Assessment Exercise (RAE) has been carried out since 1986 ranking university departments – later including polytechnics as well - in several grades. Today the research component makes up about a quarter of overall funding allocated by the Higher Education Funding Councils (HEFCs), the successors of the UGC. According to the current HEFCs formula, departments with higher ratings receive proportionally more funds than those with lower grades; departments in the two lowest grades receive no grants at all for research and postgraduate programs.⁴

⁴ In parallel to this reform of general university funding the Research Councils were committed to a policy of „selectivity“ and „concentration“.

Policy-makers and academics who devised the evaluation criteria for this new funding regime clearly favoured research. Additional resources can be acquired primarily by a good research record, while no or only limited rewards come from excellent teaching (Senker 1998). Consequently, a university department's research performance has become much more important for its funding than its teaching. The overall effect of this has been a relatively marked differentiation within the British university system between departments primarily devoted to research and research-based graduate education and others primarily devoted to teaching.⁵ Thus, strictly speaking, the *differentiation of resources for teaching and research* brought about a corresponding *intra-organisational differentiation*. But there is a tendency that over time this will result in an *inter-organisational differentiation* of "research universities", on the one hand, and teaching-oriented universities, on the other. A university with a majority of research-oriented departments will strengthen them and neglect its teaching-oriented departments, eventually close them down sooner or later; and a university where only a few departments are research-oriented will have difficulties – not the least with its corporate identity - to maintain them. Furthermore, it is obvious that the intra-organisational differentiation also gives rise to *role differentiation* between research- and teaching-oriented professors. Those who work in research-oriented departments will primarily do research; and research-oriented professors working in a teaching-oriented departments will try to move to a research-oriented one.

This differentiation of teaching and research is based on competition, not on any kind of hierarchical decision by government or university leadership. In principle, a competitive system allows movements of departments, universities, or individual professors from a teaching to a research-orientation, and the other way round. De facto, however, strong forces of an *auto-dynamic amplification of differentiation* are at work. The chances of departments with low research ratings to improve their research performance are rather limited. On the one hand, there are the leading departments whose high research grades provide them with privileged funding by both the HEFCs and the Research Councils. A virtuous cycle or „Matthew Effect“ develops by which these departments can attract the best researchers and graduate students and the most resources, which in turn increases their competitive advantage in research. This implies that in the long run the relatively best research performers are freed from the necessity to shoulder an increasing teaching load. For them it is rational to neglect

⁵ The traditional superiority of Oxford and Cambridge was both in teaching and research.

teaching in favour of research, because the latter is far more important for their resource base. On the other hand, there are the lower ranking departments which have to make their living mainly by teaching. They drift into a vicious cycle with respect to potential research ambitions. If they receive no targeted support by their university to improve their situation they will be largely restricted to undergraduate teaching. Thus, in the United Kingdom a differentiation of research and teaching along financial lines has emerged, leading to a corresponding differentiation on the level of organisations and roles.⁶

Sweden is a case which departed much earlier from the Humboldtian towards a post-Humboldtian pattern. When in the 1950s discussions on the reform and expansion of universities started to meet the rising demand for higher education, the Swedish government decided to combine organisational and role differentiation. A number of relatively small colleges under supervision of the universities were established focusing on undergraduate teaching. Teaching staff at these colleges was not expected to perform research. In addition, also within universities a large number of positions for lecturers were created who were supposed to do mainly teaching. In 1977, a comprehensive re-structuring finally established a unified organisation and funding system for Swedish higher education. Most former colleges and professional schools were integrated into comprehensive, but internally differentiated universities, (**← p. 402**) „academic colleges“ and some specialised schools (Svanfeldt 1993).

This arrangement, according to which the bulk of undergraduate teaching is done by colleges and lecturers, has allowed professors and other scientific staff at universities to concentrate very much on research - if they have preferred to do so - despite a considerable increase of student numbers.⁷ In addition, university research profited from the expansion of higher education in terms of infrastructure. Even more advantageous has been the fact that Sweden is the only country studied by us in which higher education mostly escaped a budget squeeze and funding was largely expanded in line with enrolments (Svanfeldt 1993: 263; Skoie 1998).

It is instructive to contrast the Swedish path with Germany's attempts to reform in the early 1970s. In Germany, the project of Gesamthochschulen ("comprehensive universities") failed mainly due to the resistance of established universities. The

⁶ Incidentally, this does not follow the formal differentiation of universities and polytechnics. On the contrary, at the beginning of the 1990s polytechnics were integrated into the university system by merging the UFC and the corresponding funding committee for the polytechnics into the HEFCs.

⁷ However, a numerus clausus delimits the increase of student numbers.

establishment of the position of Akademischer Rat (lecturer) within universities and the Fachhochschulen as a teaching-oriented sector of higher education ran into difficulties due to academic drift. Both Akademische Räte and Fachhochschulen have demanded rights and resources to do research. In reaction, the position of Akademischer Rat was eliminated in the middle of the 1980s whereas the Fachhochschulen, as mentioned, have received some concessions in their struggle for upgrading to university rank.

Thus, at the beginning of the 1980s Sweden seemed to have definitely left behind the traditional Humboldtian pattern. Certain events afterwards, though, raise some doubts (Askling 1999). There has been a *drift of lecturers and colleges to research* simply because more research money has become available, and government has also strengthened research in other ways.⁸ The decisive question is whether a future reduction of money available for research activities – a situation which sooner or later is sure to come - will again accentuate the differentiation of teaching and research within universities, and between universities and colleges, and even intensify this differentiation along the path Great Britain has taken. Alternatively, it may be that lecturers and colleges will have acquired by then irrevocable factual rights to participate in research.

Norway has already experienced a conspicuous back and forth between the traditional Humboldtian and the post-Humboldtian pattern (Skoie 1998). In the 1960s the number of university students doubled. But a report to government concluded that Norway had neither the financial and human resources for simply expanding universities, nor would such an expansion correspond to the interests and abilities of many students and the demands of the national economy. Instead, besides two new universities a system of regional colleges and upgraded secondary schools was established with the mission to concentrate on short-term vocational courses and continuing education and to relieve universities from undergraduate teaching. In this way, a teaching overload of universities as in Germany was avoided. But as in Germany, and to a lesser extent in Sweden, the organisational differentiation of research and teaching was soon threatened by academic drift (Kyvik et al. 1999). Students as well as faculty staff of colleges successfully lobbied first, that colleges were principally allowed to engage in research and offer the more prestigious science-

⁸ It is interesting to note that one of the main motives in this regard was to improve the quality of teaching following the classical Humboldtian conception (Svanfeldt 1993: 250-251).

oriented university courses, and second, that an increasing share of resources could be devoted to these activities.

At the end of the 1980s, however, a government advisory commission recommended to stop this development and to preserve a clear-cut functional division of labour between universities and colleges. Universities received a large number of new fellowships for research training, and additional infrastructure and funds have strengthened the research function of universities. Moreover, universities pressed for a differentiation of resources for teaching and research, arguing that they needed more continuity for research than an institutional funding determined by fluctuating student numbers allowed. But in the 1990s a large increase of student numbers and a new law on higher education merging the non-university institutions into state colleges has changed the situation again. The strengthened colleges have again intensified their demands for an upgrading to university rank including graduate teaching and research. It is too early to assess which direction Norway will finally take; but this case, as the Swedish one, demonstrates that the post-Humboldtian pattern is still unstable.

In contrast, *the Netherlands* seem to have found a more stable equilibrium at the level of organisational differentiation (de Weert 1999). In the late 1960s colleges for higher vocational training were upgraded to so-called Hoger Beroepsonderwijs (HBOs), of which about sixty now exist: "For HBOs research is only permitted in so far as it is applied (i.e. contract) research in the context of teaching." (de Weert 1999: 2) (**← p. 403**) About two thirds of all students today go to HBOs, and only one third to universities. Even more, Dutch universities have two thirds of academic staff in higher education. This quantitative relation – two thirds of staff, but only one third of students – says a lot about research opportunities, and, by the way, about possible quality of teaching in Dutch universities. And apparently, no significant academic drift of HBOs exists.

3 Moving Away from the Pre-Humboldtian Pattern: France, Hungary, Ireland, Iceland, and Spain

We now turn to an entirely different starting point than the two patterns so far discussed. Humboldt's ideas of a close linkage between research and teaching never

diffused all over Europe. Accordingly, a number of countries maintained a third pattern up to the present day. This pattern is characterised by a *correspondence of sub-systemic and functional differentiation*. Besides the higher education sector of the educational system, to which the universities belong, public research institutes independent of the universities exist within the science system; and a well-established division of labour delegates the research function to these institutes whereas universities and perhaps other higher education organisations are primarily supposed to do teaching.⁹ Since this sub-systemic differentiation between teaching and research was characteristic for most European countries in the 18th century, with the academies and learned societies engaged in research and the universities confining themselves to teaching, we call it the pre-Humboldtian pattern. With these designation, we do not want to suggest any kind of „evolutionary superiority“ – the post-Humboldtian being better than the Humboldtian and this being better than the pre-Humboldtian pattern - but just their historical order of appearance. Moreover, with respect to the pre-Humboldtian pattern one has to bear in mind that nowadays the organisational structures especially of the science system are very different from those two-hundred years ago.

In *France*, since the establishment of the Académie des Sciences in 1666 teaching and research have been institutionalised in separate societal sub-systems. Teaching has been the responsibility of universities and grandes écoles, whereas research was mainly delegated to mission-oriented research organisations outside universities with own statutes, budgets, bodies of full-time researchers, and recruitment and career patterns (Krauss 1996). After World War II, the most important organisations in civil research have been the Centre National de la Recherche (CNRS) and its sister organisation in medical research, the Institut National de la Santé et de la Recherche Médicale (INSERM). Research clearly played a secondary role in universities where it was mainly related to graduate training of young scientists. Although in some scientific fields individual faculties, institutes or professors acquired a prominent position, in general French universities were only marginally involved in research. A funding system corresponded to this provided universities with a low level of facilities and resources for research.

⁹ A country like Germany, with its traditional Humboldtian pattern, also possesses a strong extra-university sector of public research institutes. But universities are at least equally important research performers.

Overcoming this sub-systemic differentiation of teaching and research by a closer collaboration between universities and research organisations and by upgrading and improving research at universities and grandes écoles gradually have become central objectives of French science policy (Neave 1993). Two considerations gained importance. Firstly, it was decided that the infrastructure, scientific staff and pool of new talent in the universities should be used more systematically and effectively so as to expand and strengthen the French research base. Secondly, the *organisational separation of training for research at the universities and doing research in the institutes outside the universities* was increasingly perceived to be dysfunctional. Thus, French university reformers took up one of Humboldt's central arguments, namely that personal involvement in research must be an essential part of research training. From the beginning, however, they modified Humboldt's idea in a central aspect. It was never intended to include undergraduate teaching to a large extent into the projected "unity of research and teaching". Thus, with Humboldt they argued for steps towards a post-Humboldtian pattern.

In 1984 a law on higher education and the subsequent university reforms strengthened the universities' research mission (Rontopoulou/Lamoure 1988; Chevallier 1999). Firstly, the grandes écoles were explicitly encouraged to engage in research in order to use their well-equipped infrastructure and pool of excellent academics and students for this purpose. Supported by special funding programs the grandes écoles perform now a significant role in research and research training (Laredo/de Laat 1999: 26/27). Secondly, the link between advanced teaching and research at universities was strengthened. Those who take part in the universities' graduate program leading to the „diploma for advanced studies“ (DEA) have to be assigned to a research team that is associated to or recognised by the public research organisations, especially CNRS and INSERM. At the same time, these teams have to include teaching staff. In this way, a linkage between research and teaching is created. Thirdly, a new service statute was passed classifying university staff as enseignants-chercheurs (“teacher-researchers”) that are officially required to devote half of their working time for research. Although this legal stipulation could not change the lack of infrastructure and resources and the burden of teaching that were responsible for the worsening research conditions at universities in the first place, it provided research-oriented university staff with a strong argument to demand improvements in these areas. Thus, besides the full-time research system (← p. 404) operated and financed

by research organisations outside the universities, „a part-time research system whose members are also tenured university teachers“ (Neave/Edelstein 1993: 193) has developed. In this way, on the level of roles the pre-Humboldtian pattern has been replaced by the Humboldtian one.

Even more important has been a development which started already in the middle of the 1960s: the setting up of so-called „Mixed“ or „*associated laboratories*“ by the CNRS and the INSERM (Laredo/de Laat 1999: 17-19, 24-26; Chevaillier 1999). These laboratories consist of research teams which are located in universities and grandes écoles, but are funded directly by the research organisations according to an initial „certification“ and a regular evaluation based on a peer-review process. Recognition as an „associated laboratory“ is a proof of scientific excellence bringing with it reputation in academia. Generous and stable support is provided by CNRS and INSERM and complemented by research grants from the Ministry of Education which make these units independent and not reliant on scarce university budgets. Teaching obligations for university staff working in these units are reduced, and their research capacities are expanded by the delegation of full-time CNRS- and INSERM-staff. Today, about one half of CNRS-laboratories belong to this category, and about one half of its full-time researchers work in these units.

Despite complaints by universities that this system gives research organisations a dominant and undue influence on university research, it has been the most important institutional innovation for departing from the pre-Humboldtian pattern. Restricting the integration of research and teaching to the level of roles avoids some of the problems from which university systems adhering to the classical Humboldtian pattern suffer. Redistribution of financial resources and staff from research to teaching does not lead to crowding out of the former by the latter because these resources are controlled by organisations outside the universities. Thus, a differentiation of resources for teaching and research is institutionalised – an important aspect of the post-Humboldtian pattern. Another problem confronting university systems which integrate research and teaching organisationally are chronic difficulties to reorganise research structures and redistribute resources to cope with new lines of research. While teaching is organised in relatively stable and clearly defined disciplinary fields, research priorities and methods change more rapidly, and innovative and promising research areas often develop in areas crossing disciplinary boundaries. These difficulties, too, are much more easily to overcome by the temporary establishment of „associated laboratories“.

Thus, in certain respects France has tended to move from the pre- to the post-Humboldtian model and, in other respects, to the Humboldtian pattern. The same indecisive development can be observed in some other European countries. *Ireland* has also strengthened university research during recent years so that soon the universities will be the central players in this country's public sector research (Higgins 1998). But interestingly, the main reason for this has been policy-makers' belief that this is necessary to improve the qualifications of students as the future key workforce in technologically advanced industries. By improving conditions for basic research at Irish universities the quality of teaching shall be advanced – a Humboldtian idea. However, university funding is still mainly determined by number of students; quantity and quality of research is disregarded as a criterion for the allocation of finances. Accordingly, Ireland has moved towards the Humboldtian pattern.

In *Iceland* government has drastically reduced funding of extra-university research institutes. This was caused by a scarcity of public finances. Luckily for the universities, it is easier to reduce or close down institutes outside the universities than universities. As a side-effect, university research has gained importance (Thorsteinsdottir 1998). There have also been some deliberate policies to strengthen university research. Funding of research at universities has been somewhat increased. Furthermore, university staff has been encouraged to engage more in research by the introduction of a bonus system and criteria of promotion both of which reward research productivity, measured mainly by publications. Thus, Iceland has now turned to the Humboldtian pattern, but may move on towards the post-Humboldtian pattern.

In *Spain*, and later in *Hungary*, the departure from the pre-Humboldtian pattern took place as part of an overall societal modernisation after the collapse of the old authoritarian political systems. In both countries the universities' research capacity has been strengthened, most basically by granting professors the right to do research and by providing them with resources for research (Munoz et al 1999; Mora 1999; Balasz 1999). Moreover, Hungary and Spain are similar to France, although on a smaller scale, with an increase in research collaborations between universities and the National Academy of Sciences (Munoz et al 1999: 61; Balasz 1999). Especially in Spain, but to a lesser extent also in Hungary, however, a simultaneous growth in demand for teaching has worsened research conditions at universities. Thus, these two countries will soon arrive at a crossroad. Either they will drift towards a traditional

Humboldtian pattern, with all the dysfunctional consequences for research, or the modernised Humboldtian pattern will become the goal to attain. (← p. 405)

4 Conclusion

The overall picture we have drawn can be summarised in two major findings. First, *the Humboldtian as well as the pre-Humboldtian pattern of the relationship between teaching and research have more and more been criticised as inadequate*. With respect to the Humboldtian pattern, these debates have not yet brought about major changes in some countries whereas in other countries a movement towards the post-Humboldtian pattern can be noted. Those countries which had institutionalised a pre-Humboldtian pattern now turn either more to the post-Humboldtian or more to the Humboldtian one. Thus, the majority of the European university systems we studied gravitate towards the post-Humboldtian pattern. However, as a second major finding we point out that *the post-Humboldtian pattern is nowhere really stable by now*. At present no one can say whether the post-Humboldtian pattern will soon be institutionalised as firm as the other two patterns once were, or whether it will remain a permanently precarious structural answer to present and future requirements of teaching and research.

To understand these findings, it is useful to distinguish *functional requirements* of both university tasks, on the one hand, from *interests of professors*, on the other. To start with the latter, the Humboldtian pattern which demands teaching as well as research from each professor fits much better to most professors' interests than the other two patterns (Schimank 1995: 54/55). Research has, first, strong intrinsic attractions for persons who were socialised accordingly. In addition, work is more variegated if one can do research as well as teaching. Second, much more reputation within science as well as in the larger public can be gained by research than by teaching. Third, research work has a high process autonomy in addition to the professors' autonomy to choose their research topics themselves. The process autonomy implies even that no one controls whether one does research at all; consequently, this task can be used to camouflage many other activities, or simply laziness. Fourth, two tasks can often be used to refuse paying attention to demands

from one task by pointing out that one has to do justice to the second task at first. In contrast, the pre-Humboldtian pattern restricts professors to teaching, which is only one task, and the less attractive of both tasks. The post-Humboldtian pattern also restricts most professors to teaching; only a minority has the opportunity to specialise in doing research.

Thus, if only professors' interests would count, the Humboldtian pattern would be the preferred one everywhere and forever.¹⁰ For a long time, this collective interest coincided with the cognitive conviction that only an active researcher could be a good university teacher (WRK 1976: 205). Thus, it was argued, a professor had to do research to be able to teach on a scientific basis. A second, more subtle argument points out that students at universities have to learn a certain style of learning. This is esteemed to be much more important than the substantial body of knowledge a student acquires during his study because this knowledge nowadays can only be limited and temporary. Students must be enabled to cope autonomously with complex and ambivalent information; and this essential qualification for all kinds of academic professions can best be imparted by professors who are active researchers because research work asks for this qualification more than any other work (Brew/Boud 1995; Brown/Mc Cartney 1998: 122-127).

The majority of professors still hold the unshakeable belief that these functional arguments for the "unity of teaching and research" as it is institutionalised in the Humboldtian pattern are valid (Hattie/Marsh 1996: 511/512). However, many empirical studies by now have demonstrated that there is no or only a very weak and inconclusive correlation between research activities and teaching performance of a professor. Thus, it seems to be the case that good teaching does not presuppose being an active researcher. Indeed, on second thought both arguments for the "unity of teaching and research" just referred to lose much plausibility. An active researcher today is usually forced into a very narrow specialisation whereas good teaching requires a broad overview. Many professors, especially in the natural sciences, experience this as a considerable tension to which they sooner or later react with a dissociation of their teaching from their research. Likewise, although research work certainly demonstrates the style of learning needed in academic professions in general this qualification could as well, and perhaps better adapted to practical needs, be

¹⁰ Lecturers and faculty staff of colleges and other non-university institutions of higher education also strive for the Humboldtian pattern, as almost universal experiences of "academic drift" show.

taught by professors who, instead of being active researchers, have substantial experience and keep in close contact with the respective occupational fields.

Accordingly, the link between professors' interests and functional requirements of university teaching turns out to be a spurious one. Of course, professors will try to deny this because as long as the "unity of teaching and research" remains the "dominant ideology" (Brown/Mc Cartney 1998: 120), this serves their interests well. But higher education policy in many European countries is no longer impressed by this "conventional wisdom" (Hattie/Marsh 1996: 511). (← p. 406) Three decades of experience with mass higher education coupled with enduring financial scarcity have pressed policy-makers to bid farewell to Humboldt. However, the movement towards the post-Humboldtian pattern remains a permanent struggle between professors and policy-makers.

Interestingly, it has only very rarely been asked whether perhaps the "unity of teaching and research" might be functional not for the former but for the latter. With respect to one very important type of research, *curiosity-oriented basic research*, this is indeed the case (Stichweh 1988: 72/73; Schimank 1995: 51-54). Without serving particular immediate societal needs, this type of research is often suspected to be a waste of resources for "ivory tower" pleasures of spoiled scholars. This chronic legitimisation problem becomes especially acute in times of financial crisis when curiosity-oriented basic research is unquestionably categorised as a luxury society can no longer afford. One way to legitimise this type of research against such attacks is the "unity of teaching and research" in the Humboldtian pattern. The close connection with teaching gives curiosity-oriented basic research a right to exist.

But this kind of "piggyback legitimisation" of research by understanding it to be an indispensable requirement of teaching at universities is endangered if the above-mentioned "conventional wisdom" is falsified. This may turn out to be the greatest loss to research from a move towards the post-Humboldtian pattern. For two decades at least research policy has declared extra-scientific "relevance" to be the new imperative to which research at universities has to comply; and with the "new mode of knowledge production" (Gibbons et al. 1994) propagated recently this pressure will increase even more in the future. It remains to be seen whether curiosity-oriented basic research will find some other kinds of legitimising arguments which buffer it as reliably against extra-scientific demands as the "unity of teaching and research" in the Humboldtian pattern did. (← p. 407)

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Beyond Humboldt? The Relationship Between Teaching and Research in European University Systems (Abstract)

Three patterns of the relationship of teaching and research in European university systems can be distinguished: the Humboldtian, the post-Humboldtian, and the pre-Humboldtian pattern. The distinction rests on the kind and degree of differentiation of both university tasks in terms of situations, roles, resources, organisations, or societal sub-systems. Recent developments exhibit two main trends. First, the Humboldtian and the pre-Humboldtian pattern are increasingly criticised for their deficits. Thus, there is some movement towards an emerging post-Humboldtian pattern. Second, however, this new pattern is nowhere stabilised by now especially because it is in the interest of professors to maintain or establish the Humboldtian pattern. These developments are described and assessed with respect to their consequences for research at universities.

Keywords:

Teaching – research – universities - Humboldt