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Working Paper

The changing conditions of higher education teaching personnel

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This profession covers a large range of different situations, which often stem from tradition or national peculiarities. Before one looks at the condition of this category, it is necessary to define or, at least, describe the population that we can call higher education teaching staff.

There are various criteria for defining higher education teachers. Each criteria brings about a different result. Despite the fact that the majority of teaching staff consider themselves as such, the use of different criteria brings to the fore particular categories where membership is not clearly defined, which places some of its members in uncomfortable positions.

Definition based on where the person teaches

International organizations allow each country to make its own definition of what it considers as higher education. This is illustrated in the UNESCO Recommendation concerning the Status of Higher Education Teaching Personnel. The instrument defines higher education as “programmes of study at the post-secondary level provided by universities or other educational establishments that are approved as institutions of higher education by the competent state authorities and/or through recognized accreditation systems”.

Thus, within this large scope, one may consider institutions or parts of institutions to belong to higher education if they have students who are enrolled on higher education programmes. Yet there coexists in many countries a non-university sector. In France, for example, as well as in a certain number of French-speaking countries, there are not only universities and a certain number of mainly business and engineering schools, but there are also parts of secondary schools which frequently have students studying post-secondary courses. These latter schools are therefore considered part of higher education. However, the teaching staff are not considered as higher education staff.

Other countries make the distinction between a general higher education system, provided by universities, and a vocational higher education system made up of institutions which are distinct from universities. In the United Kingdom, for example, a distinction is made between higher education universities and further education polytechnics and colleges which comply with other, sometimes very distinct, logic and follow different rules. This distinction is becoming less pronounced over time. All the more since 1998 as most polytechnics have become universities. However, in many other countries higher education is made up of a more common block. The institutions are of a similar nature and teach students who have all finished both their secondary education and the necessary entry requirements.

Definition on the basis of duties

It is also possible to define higher education teaching staff according to their duties. The particular duties can be parallel research and teaching duties. In France, as in Greece, higher education teaching staff with research duties are called *enseignants-chercheurs* (teacher-researchers). This definition excludes, within universities themselves, staff who only have teaching duties and those who have only research ones. It is clear that this classification is based not on actual duties carried out but on duties stipulated in job contracts or by rank. Part of the staff employed part time in teaching can have research activities but this is not officially acknowledged in their contract. In addition, the people in question do not have access to all the necessary resources. On the other side, trainee or full-time researchers can have teaching duties that are not explicitly acknowledged.

It is thus difficult to define higher education staff on the basis of their duties or of a combination of duties which would distinguish them from teaching and research staff outside higher education.

Definition by rank

Is it possible to clearly define higher education teaching staff according to their rank or to the legal binding of their job contracts?

The rank of higher education differs between countries and sometimes within countries themselves. The extreme situations are the rank of civil servant (national or local) and that of an employee in a private company. Between these two extremes there exists a whole range of possible situations: public employment within a given region ("Land", autonomous communities, region, cities); public or private employment in autonomous public institutions; public employment in private institutions; or private employment in non-profit-making private institutions.

It is not always easy to draw the line between the public and private sector. Public or private institutions are not defined by their source of funding. In most countries, the funding is mixed, i.e. there is a varying proportion of public grants, inscription fees and revenue from services produced. Public institutions are created on the decision of public authorities whereas private institutions stem from the decisions of individuals or groups. However, this distinction is not always clear when institutions are of a certain age. All these institutions can be controlled by the authorities in the same way and receive official acknowledgement of their existence.

Public or private employment is not directly linked to the status of an institution. Private employment covers employment governed by a labour contract within the general framework of labour legislation and collective agreements between employers' organizations and labour unions. Public employment is governed on the other hand by public authorities and abides by distinct rules. In the public sector employees are recruited in a different way from those in the private sector. There are also differences in the way disputes and conflicts are resolved and how wages are determined.

Despite the fact that public universities are created, funded and controlled by public authorities, these institutions have a large scope of autonomy as far as management is concerned. This means we can consider them as private employers. Indeed, public institutions can freely negotiate labour contracts with their staff in accordance with the limits of existing legislation. It is thus not possible to make, formally, a distinction between public and private institutions as both sets of staff are employed in the same way. New employees sign a long- or short-term job contract. In addition, trade unions negotiate the working conditions or the salaries for a category of workers or for all the workers. The type of contract, working conditions and salaries are decided either at the level of the institution or at a national level, when institutions of the same nature are grouped together.

As far as teaching staff themselves are concerned, collective agreements often include provisions for a guarantee of long-term employment which can be obtained under certain conditions. “Tenure ”, as this guarantee is called, is a characteristic of the Anglo-Saxon higher education model. This guarantee allows those who benefit from it to have a similar status as public service workers. Indeed, certain higher education teachers in most western European countries and in some parts of the world (French-speaking Africa, Latin America, Japan) are considered as public service workers. Thus it is possible to make the distinction between teachers with tenure and those without.

Certain public universities, on the other hand, follow the rules of public employment. Their staff are considered the same as public administrators. Recruitment is via a particular procedure of competitive entry exams. The selected candidates are guaranteed employment for life and a career, that is to say the possibility of promotion, new work tasks and higher pay. However, public service employees are not the only category of employees; indeed, due to derogatory clauses or to the particular situation of certain categories of staff, public institutions can take on contract staff who do not have the employment guarantees of public service employees. They do not have the same conditions as employees in the private sector either, because of the specific constraints placed on public employment.

To sum up, higher education teaching staff can have four different types of “status”: contract work in the private sector, with or without tenure, contract work in the public sector and public service employees. Despite the difficulty in defining precisely the boundaries of this work group, and despite the large differences in the legal status of each group, in every country there is a debate on their condition which is compared with the situation in other countries. This is only possible because there exists a common concept of higher education that goes beyond national idiosyncrasies. This common concept has slowly developed since the nineteenth century.

The traditional concept of higher education

During the second half of the twentieth century, a relatively clear model was used as a common reference in most countries to fix the aims of labour demands or inspire legislative and statutory reforms. This model was more a myth than an actual reality in any given country, was often marked by a nostalgia for the good old days and an ignorance of the actual situation in other countries. It was a kind of “ideal type” that brought together the aspirations of the higher education teaching profession across the world. People thus noted that in certain higher education systems the working conditions of higher education staff were close to the model in question, whereas in others there was a huge difference. Other coherent concepts of higher education have existed or still exist. However, they have

never acquired this same status of international reference, and are rather seen as foreign exceptions of historical origin. Despite the above model being oversimplified, it is useful to present it in some detail because it presents us with a useful, common starting point to characterize national situations, both at a given period and through changes past and present.

The origins of the model: The Humboltian tradition

At the beginning of the nineteenth century, the scholar Wilhelm von Humbolt developed a proposal for universities based on a small number of general and abstract principles: unity of all knowledge, unity of research and teaching, and education based on academic knowledge. The autonomy of the institutions enabled teachers and students to enjoy academic freedom, and to research, teach and learn freely. In the general interest, the State was expected to accept these freedoms and ensure autonomous functioning of the institutions.[1] The principles had immediate consequences on the organization of universities: collegiate decision-making, appointments and evaluation of academics by their peers and guarantee of job security.

Cross-disciplinary universities

The principle of unity of all knowledge implies that all the sectors of knowledge and subjects should be studied and taught in each institution. Major subject groups are distributed among schools or faculties. More narrow subject areas are either allocated to departments that group together teachers and researchers of a same subject area or are grouped around a specialized chair. The department or chair constitutes the basis of university activity where research and teaching takes place. However, the students must be able to combine all fields of knowledge, and researchers work together beyond disciplinary boundaries.

In the interest of progress of knowledge, specialists from different, more or less narrow, domains in terms of knowledge must be able to intermingle and mutually enrich each other within a same institution, despite the natural tendency of each person to maintain closer relationships with those of their subject area in other universities, than with colleagues from their university but from other subject areas.

The association of teaching and research

The implementation of the principle of unity of research and teaching can be done through different modalities as far as the two processes are coordinated efficiently. The system of chairs entrusts in an individual, who is awarded the chair, the main decision-making concerning the teaching and research programmes in a given domain. It is the holders of the chairs who organize these two activities in allocating the different tasks to the staff under their charge.

[1] Einhard Rau: “Change of the Humboltian University”, in Gellert (1993).

In the system of a department, this decision-making power can be spread between more than one specialist of the same subject area, who allocate amongst themselves the activities and assert the authority in a collegiate way over the staff under their charge. In addition, students must learn by confronting research methods and results.

Academic freedom

Academic freedom is a unity of rights and privileges that higher education staff benefit from, either individually or collectively.

Teaching and research freedom

Each member of staff chooses the field of their research and should teach freely, using their research results. Of course, this freedom has its own practical limits, if the research in question is expensive and resources are limited. The choices will be made at collegiate level, either at the level of the department, university or country.

Autonomy and job security

In order to guarantee academic freedom and to ensure the development of knowledge, higher education staff have to have job stability. They should not be put under any other pressure than that of the organizational constraints of the institution, defined in a collegiate way. In particular, higher education staff should be protected from the arbitrary nature of political power and the ups and downs of a market economy. This guarantee can apply in different degrees to higher education staff and take different forms: i.e. this stability can be guaranteed by the status of public servant; it can also be included in legal job contracts or figure in the collective agreements of higher education. The concrete characteristics of this tenure vary with time and geography, but there is always a constant reference to the principle behind the idea of tenure.

Appraisal by peers

The collegiate decision-making method has an important influence on the choice of colleagues. The recruitment for permanent or temporary positions beyond a certain level of qualification, can only take place through co-option by peers, i.e. people possessing at least the same level of qualification and competence. Decisions concerning the career of a professor (be they positive, i.e. a promotion, or negative, i.e. a sanction for professional misconduct) can only be taken by peers in this type of system.

The collegial decision-making process

In the collegiate decision-making method, the members of an organization have equal decision-making power. Each member has to abide by the common rulings. In large institutions, which is the case of most universities, collegiate power is organized in a hierarchical, and sometimes bureaucratic, way. The basis of the chair system is that the holder of the chair has the hierarchical power that gives them the sole power to make the decisions that their colleagues and inferiors have to abide by. Concerning faculty or university affairs, the holder of the chair shares the above power with fellow colleagues in the faculty or university board. This organ represents the college of professors and carries out the collegiate supervision of the organization. The college can be chaired by one of its members, the dean, who does not have any particular power, being only, as the expression goes, “primus inter pares”, the first amongst equals.

The role of the dean is essentially to raise questions to be solved by their colleagues and to draw up mutual concessions that lead to a consensus. The questions at hand, are those of common interest of the different chairs: defining the curriculum, organization of the exams, allocations of common resources, recruitment of new professors. Each dean represents the faculty in outside meetings, especially in meetings with either other faculties of the university, or with the university board. The latter plays approximately the same coordinating role as the faculty college and has a coordinating figure, a rector. The university board settles any subsidiary questions that were not settled at the level of the chair or faculty.

This link between the decision-making power situated at different levels is characteristic of a hierarchical system. The allocation of the domains of competence of the different levels is organized according to the principle of subsidiarity: the low levels having a large scope of competencies in a narrow sector; the higher levels having a more limited scope of competencies in a large sector.

In addition, this organization is relatively bureaucratic due to the formality of the decision-making process. It has been shown that rules play their role in dictating the progression of information and projects in French and German universities during the 1960s. The rules are not used when consensus can be easily reached, but they are used to block a decision by opposition. It can happen that a large part of the decisions have been agreed on with seeming indifference then sometimes, unexpectedly, there will be opposition on a precise point which will lead to the opposition calling upon rules to stop the decision-making process.

The political and social role of higher education teaching staff

Higher education teaching staff are conferred great social prestige through their autonomy and competencies. This prestige is acknowledged in their salaries. Professors take part in political life and in public decision-making where their expertise is sought. Their influence stretches to the cultural and publishing spheres.

Other traditions of higher education

At the beginning of the nineteenth century, a different conception of higher education appeared in France. The French Revolution in 1789 destroyed all the ancient universities. The new higher education system was rebuilt on the basis of being totally subject to the State. Specialized institutions were created in the capital, Paris, and across the country to train the technical and administrative executives of the country, as well as people for the professions: doctors and lawyers. These institutions, created according to the training needs, aimed above all to train skilled workers, and not produce new knowledge. Scientific research and the debating of ideas took place in distinct institutions: academies and later public scientific research institutions. The technocratic framework set up by a powerful, omnipresent and centralizing State served as an organizational model for higher education and research in socialist countries during the twentieth century.

Another tradition, opposite to the Humboltian concept, existed in Anglo-Saxon countries and still has its place. This concept can be called the Newmanian tradition, after the name of Cardinal Newman who developed, during the middle of the nineteenth

century, a concept inspired principally by the colleges of Oxford and Cambridge universities as a reaction against the movement towards specialization and the development of research. In this concept, the emphasis was put more on education in the broad sense of an intellectual and social élite, than on the transmission of new knowledge. The teacher (ideally the tutor of the college), discusses on open terms constantly with the students and guides them individually. This priority given to education compared to research and teaching can be found, in part, in the spirit of the American liberal arts colleges of the following century.

The German economic success at the end of the nineteenth and beginning of the twentieth centuries was in part attributed to the quality of its training system and its research machinery. This explains why this organization, which was largely based on the principles defined by Humbolt, became a model and inspired changes in higher education systems across the world, starting with the scientific and technological fields. In the different industrial countries around the world, the national traditions developed during the nineteenth century gradually gave way to a new type of organization. In the United States, the model of the research university took over as the new model of reference. In Europe, most of the post-war reforms ratified this concept in creating departments that associated research and teaching, where previously they had not existed. The framework of the careers of higher education staff was modified and was standardized on the German model.

Of course, there have been other tendencies and other influences on higher education systems. In particular, at the end of the sixties, a movement for internal democracy led to the disappearance of the chair system in Europe and their replacement by departments on the American model, where decision-making power is more largely shared between teachers and researchers of the same subject area. However, there is no doubt that at this moment when the phenomenon of higher education growth had just begun, a uniform model established itself in most parts of the world, with perhaps the exception of socialist and French-speaking countries. However, in France the international model influenced the higher education reform that followed the 1968 student uprising.

What makes higher education teachers different from other teachers?

The specificity of higher education teachers compared to other teachers is based on the method of recruitment (training requirements and admittance to the profession), but is also based on the guarantees of autonomy which, in return, imply particular duties.

The method of recruitment

Recruitment is based almost everywhere on co-option, sometimes combined with procedures destined to level up admission requirements on a regional or national level. Higher education teaching staff are recruited by their peers (colleagues of a same or higher level who belong to the same institution or subject area). A “level” is defined by the hierarchy of each position (assistant professor, associate professor, full professor, reader, lecturer).

Admission requirements are statutory in countries where rule-based systems are important and contractual in countries where these are predominant. These requirements indicate an obligatory or recommended route and a required or desired level of training. In some countries it is impossible or hardly thinkable to reach certain positions in the hierarchy without having climbed the necessary rungs of the ladder. Indeed, in Spain (as well as in certain Latin American countries such as Brazil and Venezuela) a certain seniority as associate professor (Associado) is required to become the chair professor (Catedratico).

The career of higher education teachers is separated by stages that represent generally a promotion, i.e. both a step up in hierarchy, and better pay and working conditions. Despite functioning in slightly different ways in different countries, this route recalls the structure of medieval Europe, i.e. that of guilds where one changed roles or became more autonomous: one stopped being an apprentice and became a companion, from being a companion one could become master. These changes followed a training process which included certain exercises aimed at certifying the professional skill in the given craft.

Admission requirements can be systematically required or not: having a Ph.D. (the highest university diploma) tends to be more and more a general requirement to be admitted to stable positions in higher education. However, sometimes there are no formal requirements. In the recent past this enabled holders of just a first degree to occupy chairs at Oxford and Cambridge. Sometimes other requirements are needed during a career to reach the highest rungs of the ladder: for example, the "habilitation" introduced recently in France from the German model (the latter country is at the moment moving away from this model).

Training to become a teacher takes a long time and is often informal. Between the end of study and becoming a teacher, there is a period of initiation into research that can start by a year of formal study before the beginning of a Ph.D. The latter is both an apprenticeship tool to learn to be a researcher and an opportunity to do a first real piece of research. This research is carried out under the supervision of a research tutor and is often within a team of researchers.

Autonomy and duties

To maintain the quality of their research and teaching, higher education teaching staff have sought to obtain contractual or statutory guarantees, of which permanent employment is one of them.

"Tenure" or permanent employment

As recognized in the Recommendation concerning the Status of Higher Education Teaching Personnel, [2] "tenure, or its functional equivalent where appropriate, constitutes one of the major procedural safeguards of academic freedom and against arbitrary decisions". Teachers who benefit from it "can only be dismissed on professional grounds

[2] UNESCO (1997).

and in accordance with due process". They may also be released for bona fide financial reasons provided that all the financial accounts are open to public inspection.

The functional equivalent of tenure in public systems is the rank of public service employee. This rank generally offers guarantees of job stability but not necessarily job autonomy. Indeed, university professors benefit, like judges, from particular arrangements on this question: they cannot be transferred without their consent and can be constrained in the exercise of their functions only on the decision of their peers.

This is the case in Italy, Greece and France (where a decision by the state council acknowledged the autonomy of professors as a constitutional principle, in order to render void a decision by a university to carry out student assessment of teachers). Individual freedom of higher education teaching staff, as it is defined by the UNESCO Recommendation concerning the Status of Higher Education Teaching Personnel in 1997, includes the right to carry out professional activities outside of higher education, notably if these activities allow the person to improve their professional skills or apply their knowledge to the problems of a community.

Different guarantees for different ranks

In many higher education systems, the rights and obligations are not the same for every category of teaching staff. As in the medieval guild system, there is a hierarchy where power, rights and duties are concentrated at the top of the ladder, i.e. the level of professors (no matter their title). The proportion of professors within the permanent staff of universities varies considerably from one country to another and from one subject area to another (from 10 to around 40 per cent). In Germany, the guarantee of employment applies only to professors, whereas in other countries this guarantee covers all permanent staff. Certain functions can be set apart for them (dean, rector), and certain privileges too (in France, for example, university professors can become Members of Parliament without having to give up their duties). In the field of research, professors have the particular duties of organizing departments and the supervision of Ph.D. students.

Qualifications

The academic qualifications of teachers are generally higher in higher education than in the other levels of teaching.

The requirement of a Ph.D. as the new standard

In many countries, obtaining a Ph.D. has become a condition to be admitted to teaching posts in higher education. This implies a minimum of eight years' study.

The model of the Ph.D. has progressively taken over around the world. A Ph.D. certifies a piece of personal research carried out under the supervision of a professor, and lasts between four to six years. Young researchers carry out their research apprenticeship and while studying for their Ph.D. start to take part in activities of higher education staff. This apprenticeship can only take place in universities of a certain size that have certain

infrastructures as well as research equipment and highly qualified research to supervise the research.

The proportion of the teaching staff who have a Ph.D. is one of the criteria for ranking institutions when a Ph.D. is not a formal requirement. Examples include American universities or business schools in France. The differences in the proportion of Ph.D. holders can be explained in different ways.

The proportion is higher in certain sectors, in particular in universities compared with colleges, according to grade and age. Indeed in Sweden, [3] 95 per cent of lecturers (lektor) in universities have a Ph.D. in the science subjects compared with 79 per cent in social sciences, and 70 per cent in non-university colleges. Assistants who are younger have systematically higher diplomas than lecturers.

In the rest of the world, the situation varies to a great extent and the proportion of professors with a Ph.D. within the academic staff can be very low. In Latin America, [4] for example, which is relatively homogeneous as far as the structure of diplomas and educational training is concerned, the proportion of teachers in the public university sector with a doctoral degree was on average 11.8 per cent at the beginning of the 1990s. This figure was over 20 per cent in El Salvador and Brazil but less than 5 per cent in Mexico, Colombia and Bolivia. If we look at all postgraduate diplomas, i.e. masters and Ph.D., the proportion rises to 48 per cent, and ranges from 22 per cent (Bolivia) to almost 78 per cent (Brazil).

The requirement to have a diploma that certifies the ability to carry out research at a high level (Ph.D. or equivalent) in order to be admitted into academic employment in higher education is relatively recent and far from being a generality. This requirement raises indeed the problem of training candidates for posts in higher education. All institutions are not able to train Ph.D. students. This ability to train Ph.D. students by research is one of the criteria that differentiates higher education institutions both within countries and between countries. In the richer countries, where higher education has developed greatly, all higher education institutions (including universities) are not able to train students at this level of qualification in all academic subject areas. Few of the less developed countries are able to train at home the staff of their higher education institutions. This means that people who want to work in higher education institutions move during this part of their lives, either within countries or between them.

Apart from a few exceptions, developing countries do not have the infrastructure to enable them to train young researchers. This is not only true for scientific subjects, but also for medicine and engineering. In the other sectors, preference is sometimes given to those trained abroad rather than home graduates. An increasing stream of students do their Ph.D. abroad, and more and more in the United States, which is very costly in resource terms for their economy, even if development aid pays for part of these costs.

[3] Bauer (1999), p. 207.

[4] Garcia Guadilla (1996), p. 78.

This situation increases considerably the risk for these countries of a brain drain. An important proportion of trainee researchers abroad do not return home or prolong their stay for different reasons. First of all, the level of pay is often much lower in their home country than in the country they studied in, even in the case of precarious employment. They thus feed the market of qualified scientific manpower and in turn contribute to the depression of wages and maintaining precarious employment. On the other hand, the most qualified hesitate taking up higher education posts in their country as they fear not finding the necessary resources and propitious conditions for their research. The Ph.D. graduates in question apply for teaching and research posts in the country they have studied. They are quite successful in certain subject areas where universities have difficulties in recruiting or keeping home graduates who find higher wages in industry and commerce.

Participation in research

With the generalization of the Humboltian model, research became the most valued activity of higher education teaching staff. Even though the exact definition and functioning of research varies between subject areas, it is seen as the most specific activity of higher education. It is usual for higher education teachers to complain that their lectures and administrative duties prevent them spending all the time they would like on their research.

The research conducted and the results obtained are the most commonly used performance criteria for recruitment, appraisal and promotion during the career of higher education teaching staff. Attempts everywhere to give a new value to teaching duties have only rarely brought about a real change in the balance. This can be explained by the fact that the products of research are more easily identifiable and more easily linked to the individual than those of teaching. Publications, even if they are collective works (as is more and more frequent), and papers presented in conferences, can be assessed using a certain number of criteria resulting from a consensus of the specialists of a subject area. These research products can be qualified, counted and weighted to obtain a synthetic measure making it possible to classify and choose. This activity has even given birth to a science – “bibliometrics”.

The importance of research appraisal for individual careers prevents the faculty from being able to choose freely the arrangement that suits them best amongst the different activities open to them. If there exists on the one hand the possibility to specialize, either temporarily or permanently, in research, it is not the case for teaching. Indeed, higher education teaching staff rarely choose spontaneously to specialize in teaching. Most higher education institutions can decide on the proportion each of their employees are authorized to spend on their diverse activities. The institutions can, thus recruit a “research professor” whose teaching duties are limited to seminars for Ph.D. students. The institutions can, for the duration of a research project, relieve a teacher of their lectures. They can also change the teaching load of teachers according to duties or particular performances. In other institutions, the choice is much more limited due to the limitations of staff regulations. In France, where an important share of public research is carried out outside of the universities, it is possible to be either a full-time researcher or a teacher and researcher, in which case the person is reputed to divide equally their time between research and teaching, or to be only a teacher and not have any acknowledged research activities.

If one looks beyond the contractual or statutory proportions of each activity and measures the budget of time of higher education teaching staff, one notices that the

categories of staff who spend most of their time on research are assistants or teachers beginning their careers and those who have reached the top of the ladder. The former are continuing activities based on their Ph.D. and their post-doctoral placement. The latter dedicate themselves to scientific activities, supervision and especially the administration of their centre or department and fund-raising. Sometimes they also have the possibility of delegating their teaching to assistants. Between those two categories, teachers in the middle of their career or belonging to intermediate ranks spend more time on teaching and preparation.

Working conditions

Due to their research activities, higher education teaching staff have a lighter teaching load than teachers in secondary and primary schools. This load is not defined the same way everywhere: sometimes it is the amount of time present at work that is taken into account, or sometimes it is the contact time with students, either in lectures or individual guidance via tutoring or work supervision. Higher education teaching staff can reduce their teaching load by taking up certain administrative duties or by delegating their teaching to assistants. Given this variety in the definition of teaching duties, it is only possible to give the range of hours for teachers in mid-level positions. The teaching load can be stipulated on a weekly or yearly basis. Indeed, a French professor must teach 128 hours per year, which corresponds to four or five hours a week depending on the length of the academic year, whereas a teacher who is not supposed to do research teaches 392 hours per year, or 12 to 15 hours per week, which is close to the teaching load of secondary-school teachers. An American professor has a teaching load of two to three lectures per semester, which corresponds to 8 to 12 hours per week.

Teaching groups are generally smaller than those of secondary schooling. However, there can be a large difference in the size of groups, according to the type of course and according to country. The average student/teaching staff ratios in higher education institutions vary from less than ten students per teacher in the former socialist countries (Cuba: 5; Russia, Poland, Hungary and the Czech Republic: 9-10), as well as in Latin America, to more than 30 in many developing countries (Philippines: 30; Syria: 35; Jordan: 72). [5] The figure for industrial countries is around 15, with peaks in Greece at 24 and Italy at 29. [6] In certain countries, there can be very large differences in the student/teaching staff ratios between sectors and subject areas (for example, in France the ratio is less than ten in sciences and more than 40 in law). Scientific subject areas that use experimentation are generally better off than the more vocational fields of study (medicine and engineering). In countries where higher education institutions cannot control the number of students who enter, the rise in the size of cohort groups to meet the strong growth in student numbers has reached surprising levels in certain subject areas. In Côte d'Ivoire, the higher education management plan, mindful of lectures in front of 1,000 students, suggested limiting the size of classes to 300 in 1996.

Another specificity of higher education, which is very widespread but not universal, is the possibility for teachers to take sabbatical leaves in order to concentrate on long-term research projects. These sabbaticals are generally paid and last between a semester to a

[5] Calculated from UNESCO *Statistical Yearbook, 1999*.

[6] OECD: *Education at a glance*, 1998.

year. They can be requested after three to six years of teaching. Sometimes these sabbaticals are limited in number and can be the subject of competition between teachers.

Salary and other earnings

As a general rule, the level of income of higher education teaching staff is higher than teachers of other levels. The range of salaries is quite open. The wage difference between a non-permanent member of staff and a highest grade professor can be up to one to three times as much in most industrial countries. In countries where wage rates can be fixed freely by the institutions, there can be wage differences between subject areas (the most well-paid teachers being in the subject areas where there is difficulty in recruiting teachers).

There is everywhere the possibility of earning additional income on top of a basic salary. In many countries where wage rates are the same across the public sector, bonuses and additional wages of quite divergent types may be paid. Permanent staff are often allowed to spend a limited part of their working time on outside consultancy, advisory work and teaching. In countries where the level of incomes of higher education teaching staff are low, an important time-consuming outside activity is accepted in order to give staff a good enough standard of living so that the teachers stay in the profession.

Academic careers

Separate careers for teachers

Whereas in some disciplines higher education teachers were traditionally recruited among secondary-school teachers, the generalization of the requirement of a doctorate degree to hold higher education positions affects the traditional teaching careers and separates the teaching bodies working at the different levels of the education system. Among doctoral students, there is a small number of secondary (or even primary) teachers who intend to apply for academic positions, but for the majority of students the choice of a given teaching career will be exclusive of others. They have to opt for such a career quite early and it is getting more difficult to change from one type to the other.

Academic careers are increasingly accessible only through a postgraduate training in research. This separation is even clearer when a specific training is organized for young researchers on a track leading to higher education positions.

Internal mobility in higher education

Once recruited in higher education institutions, young researchers may benefit from different careers. In the tenure track system, as it works in United States institutions, access to a given position opens a clearly defined path that will lead, through a succession of promotions, to the highest levels of the academic career in their institutions or others. People who do not climb the first step have very little chance of reaching higher levels.

In the German tradition, once recruited on a tenured position, academics can only get a promotion by changing university, when they get a "call" from a different institution. It is therefore usual for universities to try to attract professors from other institutions by offering them higher salaries or better working conditions, including research resources.

In the centralized French model academics are employed by the State and may transfer from one institution to the other when there are vacancies, without any change in salary or in working conditions. Promotions are decided upon by a National Council of Universities composed of peers.

Other career systems combine elements of these three models. The present trend, which gives the individual institution more autonomy and responsibility, affects the career patterns since the governing authorities of institutions favour rules that give them tools for encouraging and rewarding their staff.

Discrimination in academic careers

Democratization of universities allows new categories of the population to enter higher education. "Elite" institutions attended by young men from privileged social classes have almost entirely disappeared. Female students are a majority in universities of the richer countries. In developing countries, decolonization has been followed by a slow process of nationalization of higher education institutions and the faculty is now almost entirely indigenous.

Yet a degree of social inequality remains in universities: students and, above all, teachers do not represent the same social distribution as the population taken as a whole. Societies that value social equity are concerned with social discrimination. Two particular groups attract their attention – women and ethnic or religious minorities.

In multiracial societies, such as the United States or South Africa, discrimination in access to the most prestigious occupations is studied and remedial policies are designed. South Africa, in particular, relies on higher education to reduce social discrimination and lead the country to democracy. Despite the political priorities repeatedly stated since 1994,[7] discrimination in recruitment and promotion of higher education staff has not decreased.

The situation of women has slowly improved in most regions of the world.[8] The share of women in higher education staff varies widely across regions: according to UNESCO, women account for 3 to 50 per cent of academic staff. Their share is the lowest in French-speaking Africa (Chad: 3 per cent; Guinea: 4 per cent; Congo: 8 per cent; Benin: 12 per cent; and Senegal: 13 per cent). In the rest of Africa, it ranges from 20 to 30 per cent and reaches 37 per cent in South Africa. In the majority of OECD and

[7] Fourie (1999).

[8] UNESCO *Statistical Yearbook, 1999*.

European countries [9] it varies from 30 to 40 per cent with the notable exception of Japan (22 per cent) and Germany (25 per cent) on the one side, and of New Zealand (42 per cent) and the Czech Republic (52 per cent) on the other. Latin America is fairly comparable with Europe.

Inside each country, the share of women also varies according to disciplines: in the arts and humanities, as well as the social sciences, there are relatively more women than in the natural sciences (with the exception of biology) and in engineering and technology, which are male preserves. The gender distribution of staff tends to follow the distribution of students. In law, business administration and health studies, the gender distribution of staff has not changed much despite a deep transformation in the student population. Nevertheless, when looking at the gender distribution according to age, one notices that the share of women is growing in the younger generation of staff.

In any discipline, gender discrimination is notable according to the level of responsibility and pay. When women make up an average of 30 per cent of academic staff it is not unusual that they account for only 10 per cent of the top academic positions. In Sweden, [10] for example, when the share of women in the faculty is about 30 per cent, men account for 90 per cent of the full professors, 88 per cent of the heads of department, 90 per cent of the deans and 80 per cent of the rectors.

[9] OECD: *Education at a glance*, 1998.

[10] Askling, in Enders (1999).

2. Transformations of higher education

Since the 1960s, all over the world, higher education systems have grown at an unprecedented pace. This growth brought about deep transformations, both qualitative and structural. This growth is explained by both demographic and social factors. The increase in participation rates went along with a new definition of the missions set out for the sector as a whole or for some of its components.

These new missions have led to a redefinition of the traditional relationship between the higher education institutions and the public authorities. The changing environment has modified the internal structures of universities and affected the conditions of their staff.

Democratization of higher education

The growth in student numbers during the second half of the twentieth century has had deep consequences on higher education systems. Some, of a transitory nature, should disappear when systems stabilize at a higher level after a period of expansion. Some others are likely to stay because they have changed the structure or the missions of higher education.

Consequences of mass higher education

In no country has the increased participation in higher education been accompanied by a proportional growth of resources devoted to it, especially the number of teaching staff.

Increase in the student/teacher ratio

The increase in the student/teacher ratio can be observed in countries where enrolments grew at a fast rate, and also in countries where the student population remained quite stable. In Central and Eastern Europe, the number of students remained stable but deep restructuring of the higher education sector due to the economic situation during the early years of transition drove the ratio from five to ten in a decade.

It would be possible to determine whether this change translated into increased teacher productivity or into a lowering of the services provided and a loss in quality of education, provided a satisfactory measure of the final outcome of the education sector could be defined. Have teachers grown more productive, being able to educate more students with the same methods and the same level of quality? Have institutions become better organized, finding new ways of teaching more students with the same amount of resources?

Judgements passed on quality of outcome are often based on shaky and disputable information. Like most non-marketed services, education lacks a measure of quality that does not depend on costs. Higher quality is often thought of as entailing higher costs when one neglects improved productivity that can be brought about by changes in teaching methods and in institutional organization. When many changes occur simultaneously, it is hard to assess soundly the evolution of teaching quality.

Deterioration of the material conditions of higher education

In many countries, expenditure on buildings and equipment has lagged behind changes in student enrolments or current expenditure. In times of growing needs, budgets tend to concentrate the available resources on the daily operations and hiring of extra staff. Capital expenditure is postponed until pressure eases. As a result, the material conditions of teaching and learning are likely to deteriorate: overcrowded classrooms and libraries; diminishing numbers of books and periodicals; and packed laboratories where worn-out equipment prevents proper teaching in experimental subjects.

In developing countries, this is a chronic situation because of the permanent lack of financial resources, partly due to the priority given to student financial support considered necessary for greater educational access.

Lacking books and equipment, a large number of casual teaching staff, often poorly qualified, use teaching methods that differ little from those of secondary education. Without books, computer equipment or laboratory materials, they are often constrained to using lectures and examination methods which favour rote learning.

In more developed countries things are rarely that bad in universities but some of the same features can be observed: in periods of rapid growth, little priority is attached to the improvement of teaching methods and to the creation of new programmes; rather, efforts are directed towards increasing capacity. When the pressure decreases, a larger share of the available resources can be directed towards innovations in teaching and improvement of the material conditions of students.

A few countries have succeeded in controlling the influx of new students, spreading the growth over a longer period, thereby achieving a more balanced development of their higher education system. In Europe, where participation rates have reached similar levels over the long term, countries with the steadiest growth have controlled more efficiently the evolution of their higher education sector. In less developed countries, restrictions imposed on education budgets by structural adjustment of international financial institutions have badly affected higher education, considered less vital for fostering economic development than primary or secondary development.

In order to absorb a larger part of the strong demand, countries have encouraged the creation of a private sector of higher education. This sector has developed a narrow range of profitable programmes in popular fields like business or services; in so doing, they have often competed with the public sector and contributed to a rising graduate unemployment as student enrolments increased without controls.

A more heterogeneous student body

In richer countries, democratization means that among the new students many come from a family without prior experience of higher education or even secondary diplomas. This creates difficulties with regard to a compartmentalized secondary education where a strong "streaming" or filtering-out process reduces access to certain higher education disciplines. Teaching methods that were adapted to a socially homogeneous group of students may prove inadequate for a student body with different interests and experiences. A hierarchy of training tends to be created which leads to social discrimination.

Diversification and differentiation of institutions of higher education

In this period of growth and transformation, higher education systems have diversified to a lesser or greater extent, absorbing vocational programmes until recently outside their scope, and creating new programmes as the labour market and the cultural scene changed.

This adaptation followed two distinct patterns: a diversification when one type of institution started offering a variety of programmes of a different nature; or differentiation when new types of institutions were set up to cater separately for programmes corresponding to new missions or different rationales.

In dual systems, higher education is divided into two sectors, one responsible for vocational or, more broadly, professional education, offering shorter or more focused programmes, and the other for general education with longer study programmes leading in part to research training. These two sectors are kept separate as their curriculum, their teaching methods and their objectives are distinct. Their staff is specific, with different working conditions and a different attitude to teaching and learning.

In unitary systems, similar institutions such as universities organize a complete range of programmes on similar principles. Mobility is possible between programmes within an institution and among the various universities. In such a system there is to some extent differentiation among institutions as they develop specialized teaching or research profiles, adapt to a given environment or make the best of specific resources they own. They operate in the same legal framework and use the same rules and practices for recruiting and promoting staff.

A clear trend in the last two decades has been the process of unification of national higher education systems, under two influences, that of the economic pressure linked to growth and that of internationalization. In 1990, the United Kingdom abolished the binary system made up of institutions with different missions, the universities and the polytechnics. In Central and Eastern Europe, a large number of small specialized institutions are progressively being merged into larger universities. In France, where a sharp separation between an élite sector of small selective institutions and large universities has existed, the distinction is becoming less prominent as universities and some of the small institutions increasingly cooperate or even merge at the same time as both sectors diversify.

In countries where the dual system remains or has been strengthened, like Germany or the Netherlands, the conditions in which both types of institutions operate are getting closer: funding methods and conditions of teaching staff are being harmonized. This harmonization opens the way to future alignment of both types of institution on the university model; as staff is trained and recruited in the same way for both types of institutions, they tend to share the same values. This leads to what some refer to as "academic drift" similar to that which took place in the British polytechnics until they were transformed into universities. This situation points to a paradox: [11] as institutions diversify, their staff is trained in a more uniform way. Although they do many different sorts of work, their values and the way they are assessed by their peers become more homogeneous.

New missions

As they catered for a growing share of young generations, higher education institutions have been assigned new missions beyond their traditional ones: knowledge creation and education of the countries' social and economic élite. After the Second World War, in the societies of the developed world people came to believe that economic growth was the outcome of education and research: the higher the level of education of the population, the more productive the workforce; the faster research results are transferred into production, the better it contributes to the improvement of the human condition. Countries that foster industrial innovation and train a qualified labour force to apply it will take the lead over their competitors.

International economic competition increases the need for innovation that relies on information and knowledge. Firms are compelled to restructure if they are to withstand the pace of innovation and change.

The universities are asked to take their part by expanding activities in two areas: applied research and vocational education. They are expected to provide the economy with the workforce it needs, to guarantee their students an adequate job and to help design new methods for producing new products in industry. In order to do that, they too need to alter their organization to produce knowledge in a different way.

It has been thought for some time that these additional missions could be dealt with by specialized institutions or in isolated sectors of existing institutions; new departments or institutes were created inside universities to look after education and training in technology or to enter in partnerships with industry for conducting applied research, in the hope that it would leave the rest of the institution untouched and so preserve its traditional mission.

In fact, vocational education and training, as well as lifelong learning, bring in a different type of student and require new teaching methods, different ways of assessing learning and certifying skills and acquisitions. They also impose a new definition of the curricula, discussed with partners in business and industry.

[11] U. Teichler: "Quantity and quality of staff in higher education", in *Higher Education Policy*, Vol. 7, No. 2, 1994.

Applied research and assistance to industrial development also imply a new working environment and a different logic of action. It is necessary to find, from among existing researchers or through training of new specialists, people with a sound knowledge of business and of research that can act as "interfaces" between firms and university laboratories. Similar specialists are also needed in fields like consultancy where universities have to compete with a strong private sector of specialized organizations.

New partners

The new missions give birth to new problems: partnerships with private firms in applied research render more complex the question of distributing intellectual property resulting from research and invention. When research was entirely funded from public sources, it did not matter who was the owner of results, and the scientific community usually considered that they simply had to be published so that they could be used freely by researchers all over the world.

Research projects funded by research councils and contracts signed by university laboratories with public or private firms increasingly provide for non-disclosure clauses and assign to the funding party the ownership of what can be patented or protected as industrial, commercial or intellectual property. What used to be seen as freely accessible fundamental research results is now increasingly "patentable". Once identified, ADN molecules which make up our genetic code are patented, so are living organisms obtained by genetic engineering. The distribution of the income generated by such scientific breakthroughs among the parties involved (researchers, their employer and the funding organization) mostly depends on their relative strength in a contract negotiation. Owing to their size, international firms which are very active in this sector of research often outweigh individuals or universities.

The widening of links between universities and the "outside world" creates another type of difficulty. As they turn to the actual problems of the world, academics are asked to bring their expertise into a growing number of different fields. Traditionally, they used to do this on an individual basis and get paid for their advice like the members of the professions with which they were in a way competing. Their advisory services were often attractive since their price did not include all the costs borne by their institutions. Universities, increasingly confronted with financial problems, are getting less tolerant and trying to capture a share of the growing consultancy business by enforcing stricter policies, designed to obtain some of its income without discouraging staff to carry on with this activity.

In many countries, public authorities in charge of higher education or research and heads of institutions take a more liberal view, accepting outside income earned by academics as a supplement to salaries that do not compete with the level of pay existing in firms, in administration or in foreign institutions. In so doing, they increase possible tensions among staff in the various disciplines for whom access to such income is unevenly distributed.

A changing organization of research

The type of knowledge required by industrial partners cannot always be produced within the traditional organization of research based on a growing division of labour between disciplines. In this mode of "scientific" research, called "mode 1" by Gibbons, [12] the research agenda and the appropriate methods are set by a community of specialists which, in turn, validates and legitimizes results, i.e. newly produced knowledge.

A new mode of knowledge production has developed in parallel with the traditional one. In this "mode 2", knowledge is conducted across disciplines, in a context of application and relies on several methods used simultaneously. Applied sciences have been known for a long time and have always been difficult to keep within the boundaries of the disciplines: engineering, computer sciences and business administration are examples of applied sciences. In these fields, the research agenda is in part set and bound by demands originating in the economy. Knowledge is sought for its usefulness and is achieved through a variety of methods. Researchers aim at solving problems and often transfer knowledge acquired in other contexts.

This second type of research, eclectic, cross-disciplinary and problem-solving oriented, takes place in other fields and in different settings: university centres, public or private research institutes, firms and administrations. Between these places, networks are built according to the needs of each project. When new projects arise, these networks reconfigure. Research groups are much less institutional as they consist of teams of participants brought together for given projects. While taking part in successive ventures, individuals build up specific skills that are recognized by the members of the network and later called upon to join new teams. Funding patterns also differ from the tradition since each project is financed by various organizations putting more or less resources into it according to their own interests or priorities.

Such research is impact-sensitive as the environment is taken into account from the outset of the projects. The quality of its results is assessed, not by peers but by ad hoc groups that reflect the variety of participants. Such evaluation panels are difficult to organize. The criteria they use for assessing research adapt as projects and teams change. These features explain why academics trained in disciplinary research are often disconcerted and sceptical about evaluation of such activities when they take place in their institution.

There is evidence of the growing importance of this research mode in the way academics organize and finance their research and in the emerging debates that develop in the communities of researchers: intellectual property rights, introduction of market values in universities, expansion of consultancy and various related problems. Its influence can also be seen in evolutions that occurred in internal organization and in decision-making processes inside the institutions. It is felt, however, more on the periphery of universities than at their core where consensus-building methods of decision-making makes it impossible to react swiftly to demands coming from competitive markets.

[12] Gibbons, 1994.

A new management of universities

Changes in institutional governance

New funding patterns, pressure from government to transform the management style and increased competition have a visible impact on internal organization of universities. Traditional collegial processes are being challenged by managerial practices quite unfamiliar to academics.

The growing size of individual institutions and of the whole system of higher education, combined with the heavier constraints in resource utilization imposed by funding bodies, have slowly distorted the methods through which activities were controlled and the future was shaped.

Collegial government rested on a large autonomy of the individual professor within well-defined limits, and consensus-building processes for dealing with common matters.

The growing division of knowledge and the corresponding specialization of research, together with the change of scale of higher education, made it difficult to maintain collegiality. Chairs that were the symbol of individual autonomy were replaced by departments in which a larger number of people were involved in making most decisions on matters related to teaching and research. Heads of departments were given a responsibility for coordination of courses and research programmes in a given disciplinary field at the expense of individual professorial autonomy.

In the wake of the protest movement at the end of the 1960s, students and administrative staff gained seats on the various governing boards of institutions. What was called “democratization” of universities marked a significant change in the way decisions were made: consensus was replaced by confrontation and collegial processes turned “political”. Selection and assessment of academic staff remained collegial but most other sectors of teaching and management were subjected to democratic processes in which confrontation and alliances often led to dead ends, especially in times of financial restrictions.

This “democratic” phase of management, which took place to a greater or lesser extent in most countries, brought about a change in the functions of the university officers: rectors, deans and heads of departments turned from colleagues trying to build consensus among fellow academics to managers responsible for designing projects and implementing policies for which they are accountable to various “stakeholders”. Practices started evolving and in the 1980s legislation was modified in different European countries reflecting, or even accelerating, this transformation.

Under the pressure of governments, public sector universities, like other public organizations, started to adopt the basic principles of “new public management”: accountability and strategic planning were introduced, as well as new funding mechanisms to create incentives in the allocation of public resources to institutions thus allowing for external steering. In most countries, this evolution towards managerial organization, which already existed to some extent in the private sector or in non-university types of higher

education institutions, clearly clashed with the collegial tradition: it meant an increased power for the executive to the detriment of boards or senates. In countries where higher education was centralized, it was accompanied by an increase in the power of institutions. In more decentralized settings, on the contrary, it was seen as an expansion of state control and a restriction of academic freedom. In numerous areas, reduced autonomy of the individual professor became the trade-off for enhanced institutional autonomy.

Although collegial structure has tended to lose its importance in the management of universities, it is still strong at the level of the discipline across institutions and across countries. What Clark [13] has called "Invisible colleges" remains effective in defining the research agenda and in selecting and evaluating academics. [14] In "old" disciplines they are sometimes in a position to challenge university executives and government policies. In emerging disciplines or cross-disciplinary fields, where knowledge is produced in different ways, more leeway is given to university administrators, governments and industrial partners.

Increased competition between institutions

Competitive pressure on universities is sometimes introduced purposefully by government and sometimes evolves from other sources. It comes from other national institutions but also from foreign countries and from new providers that seize opportunities offered by information and communication technology to enter the higher education market. Increased competition, combined with stable or decreasing enrolments, can lead in the short run to financial problems for individual institutions. Institutional resources are sensitive to the number of students where tuition fees make up a sizeable share of their revenue or when public funding is geared to the number of students.

This situation is getting more frequent as public policies increasingly rely on competition and market mechanisms to foster efficiency and a better use of resources.

Changing patterns of higher education finance

Diversification of institutions, growth in enrolments and new missions of higher education have led to a redistribution of responsibilities as far as funding is concerned: though in public systems the State remains the main provider of financial resources, it has stopped funding some activities and urges institutions to turn to other sources of funding, local government and business. Even in countries with a strong tradition of free education, student families and students themselves are expected to bear part of the cost through tuition fees or loans systems.

Research is less and less funded together with teaching through block grants. A growing share is financed on projects for which universities bid competitively to

[13] Clark, 1983.

[14] This case is clearly presented by Kogan (2000).

specialized funding agencies. Applied research is financed on a contractual basis by firms and administrations, which set the aims and sometimes the means of investigation.

This dispersion of funding sources requires from universities financial skills similar to those of commercial firms that have to prospect and conquer markets. If multiple partners enhance their independence, the universities, which lack the adequate skills, often use academic staff for this purpose, thus detracting them from their fundamental activities of teaching and conducting research.

Introduction of quality control

When higher education systems were small and stable, quality of provision, maintained through collegial processes, was not questioned. With fast-growing student populations and programmes constantly diversifying and renewing their curricula, the traditional procedures could not ensure continuing quality. Appropriate use of resources is no longer taken for granted by those who fund the institutions. For these reasons, quality control methods that originated in industry were introduced in universities at various levels in the conception and operation of teaching and research. These practices have generally been seen by academics as a threat to academic freedom.

In education, as in other non-market sectors of the economy, as it is hard to measure satisfactorily the output of productive units, evaluations tend to focus on the use of resources rather than on results. In predominantly public systems in Europe, as is the case in other parts of the world, governments find it difficult to assess the performance of universities in a synthetic way by looking for the bottom line as analysts would do for commercial or industrial firms. [15] Evaluation of higher education therefore relies on a series of separate assessments of the various activities performed by institutions: research, teaching, students' satisfaction, services to the community, effectiveness of transition to work for graduates, use of resources etc.

Evaluation can serve different purposes, thereby creating internal contradictions. Evaluation of academics can be used for staff development, detecting weak points on which training could be organized or organization improved. But it could also be used as a basis for a system of rewards and penalties. As staff generally approve of the first option, they fear that the second will take over as new management techniques consistently focus on building incentives in pay policy, commonly referred to as "merit pay". Knowing how hard it is to assess merit in a proper way, they dread that it could lead to arbitrary discrimination.

Opening to the outside world

Obviously, their new missions and partnerships push the academics out of their ivory towers. Other factors contribute to the opening of higher education to the world.

[15] See Trow (1994).

New information and communication technologies

Although their introduction is recent and limited to some parts of the world, new technologies, bringing together computers through telecommunication networks, clearly challenge universities, raising a number of new problems as well as providing opportunities. They allow for spatial redistribution of research activities and deep transformation of the conditions in which teaching takes place. This can possibly lead to the disappearance of the traditional campus and its replacement by "virtual" institutions. This also gives new dimensions to the questions of intellectual property. All this is deeply worrying for a profession susceptible to profound transformations in many spheres.

The explosion of teaching and research resources

Computers keep increasing our capacity to store and process information. Combined with wider and faster telecommunication networks, they give universities access to more and better distributed resources. Libraries and computer centres, which used to be strategic assets, are becoming accessible from every point in the world through networking. A large part of research no longer needs to be centred around large facilities or expensive equipment. Researchers are able to communicate with distant places, share their results immediately and build up flexible teams of highly skilled people.

A wider scientific community

This technological innovation creates opportunities for countries that were too isolated or that had insufficient resources to build a research infrastructure comparable to that which exists in most developed countries. Chinese academics, for example, rely on the Internet to build scientific relations that were previously almost impossible. As the costs in equipment and connection are going down, access to the global network is made easier and the limits to its use have more to do with cultural or linguistic impediments than with availability of financial resources. Universities in underprivileged regions like western Africa, for instance, do not seem to fully use the opportunities that the Internet could offer them to make up for the disastrous state of their libraries. The number of workstations connected to the telephone network is rather limited and demand is low owing to insufficient information of potential users and lack of training for specialized staff.

Shifting the boundaries of higher education

Two phenomena threaten institutions which could lead them to lose their identity and to dissolve in the present environment: on the one hand, a growing number of firms, in various industries, initiate or develop activities in direct competition with universities and colleges; and on the other hand, higher education institutions themselves, spurred by competition or urged to fulfil additional missions, enter new territories.

The growth of knowledge industries

Collection, processing and distribution of information are increasingly concentrated in industrial groups that are constructed across national borders and bring together previously distinct industries. The media, publishers, telecommunications and the computer industry are integrated in multinational firms that explore all the markets open to the new products that can be produced using the specific combination of skills and techniques they possess. They see vocational education and training as a market since many needs are not answered by existing institutions. When training in the use of new technologies in foreign languages is not adequately provided in a given setting, individuals are ready to put time and resources into building highly useful skills, especially if they are offered attractive and effective methods. When provided at a distance, these methods often are the only available option for people who are isolated or stuck at home.

Skills acquired in this way can bring immediate improvement in the life of those who have invested in training. They also may bring a promotion if they are certified. Higher education institutions, used to catering for an audience of well-defined students, rarely succeed in providing attractive standardized material that could satisfy such a demand. They also feel uncomfortable with the marketing side of this business and with its implications for intellectual property rights derived from course design.

Universities are clearly lagging behind their new competitors in the emerging markets for education and training. It would not harm them if they were only missing opportunities, but they run the risk of losing their own traditional activity to their competitors. By developing modular courses, by organizing credit transfers and validating work experience, they put themselves in the situation where they will be asked to recognize and certify skills and competencies acquired outside the education sector. The software giant Microsoft offers to run courses and organize certification for institutions, knowing that many students and firms will value skills acquired in such a way more highly that standard university training. Large firms that have designed databases, training methods and certification processes for their own staff try to sell them at a profit when they meet no competition. The intrusion of markets in the education sector can be deplored; it will not be prevented by prohibitions and monopolies.

Lifelong education and training

Universities long ago started to engage in extra-mural activities to take part in vocational training of professionals and employees. In rich countries, they have recently discovered a new type of older and more experienced students who resume their education after some time spent in employment. The number of mature students has often been small enough for institutions to try to accommodate them like “regular” students without altering the curriculum or the teaching methods. With the development of lifelong learning, this population is bound to increase and, in some sectors, to become a majority. They will not opt for universities if these institutions do not offer them adequate learning conditions, by radically changing teaching methods, by designing programmes that respond to the needs of each individual and by delivering them in suitable places and ways. This implies a switch to inductive methods, based on problem-solving, tailor-made curriculum and some form of distance provision. When they become a majority they cannot be distinguished from younger students, which means that the “cultural” revolution will eventually spread to every university discipline.

As shown earlier, research in emerging fields or across disciplines pioneers a new mode of knowledge production. In this setting, knowledge is co-produced by partners of different types connected through networks as opposed to traditional modes of scientific research where specialists are concentrated in university laboratories. In sectors where this new mode develops, the institutional boundaries become blurred.

3. Impact of the changing environment on the conditions of academic staff

All the changes that have affected higher education systems in the last three decades around the world have inevitably had an impact on the working and living conditions of academics. Different trends can be detected that will deeply alter the nature of academic work, its environment and organization, as well as the conditions of entry into the profession.

A diversification of the academic profession

The growing size of institutions, their diversification and their opening to the outside world imply a differentiation of the tasks that are performed by their staff. For permanent academic staff, the tenured professors, it can either be perceived as a possibility to do different jobs during their career, which may appear attractive, or as an increase in the workload and a source of stress.

The administrative tasks related to teaching and research, especially those caused by the development of accountability or the search for funding for research projects, are clearly perceived as an unavoidable nuisance since they can hardly be transferred to administrative staff. For other categories of staff, on the contrary, the evolution leads to greater specialization which implies a reduction in the variety of tasks and growing monotony of work.

Full-time teaching staff

The existence of a growing number of academic staff who do not take part in research has become a general trend. Often, these people have a heavier teaching load and do not participate in departmental decisions on academic affairs. They are usually assigned to subjects considered as secondary in the curriculum, like languages, especially in programmes with a strong disciplinary content. Their functions are very close to those of secondary education teachers and they usually start their career in secondary schools, opting for higher education when they have an interest for research or when they look for better work conditions or environment.

Part-time faculty

This category is more heterogeneous as it comprises young researchers still being trained or looking for a permanent position, as well as for whom part-time work may have been involuntarily imposed, or freely chosen. It includes professionals or managers coming from the private sector or from public administrations whose expertise is necessary to the institutions for professional or vocational programmes.

Researchers

Changes that have taken place in the nature of the research activity or in its funding have given birth to a growing number of short-term positions for qualified researchers who switch from one job to another and from one project to the next, usually in the same institution but also frequently moving from one research centre to the other. Despite their specialization and their high qualification, they remain in casual employment, rarely compensated by a higher income. Absence of job security may make their life quite difficult.

New skills in institutions

Part of the tasks that were traditionally performed by academic staff are now done by specialized staff. Administrative and technical staff of universities are becoming more professional and the average level of qualification is increasing, as can be seen in the definition of job openings. A division of labour which has been in operation for a long time among researchers, is now visible in teaching, especially when new teaching and learning methods are implemented. Educational engineers, multimedia directors, Internet designers and computer specialists are involved in processes which used to be entirely controlled by teaching staff.

A changing work environment

New conditions of employment and job insecurity

Decline in job security

Life-time security of employment, whether ensured by government civil servant status or through contractual arrangements known as “tenure”, has declined in the last decades of the twentieth century. In many countries, institutions which are confronted with fluctuations in financial resources are trying to reduce their labour costs by introducing greater flexibility through casual labour. The United Kingdom formally abolished tenure in 1988. Newly recruited professors and lecturers may be made redundant if their institutions encounter financial troubles, and tenured staff in many cases are asked to renounce tenure if they wish to be promoted. In the United States, several universities offer their staff higher salaries in exchange for tenure.

Fixed-term contracts

Although tenured employment, or its civil service equivalent, remains the prevailing form of employment in the majority of countries, there has always been a significant number of staff working on short or medium-term contracts. For the most part, this concerns graduate students who are at the beginning of a career in higher education or in research.

Access to stable positions in universities or research institutions nearly always passes by a period of unstable employment. The selection process for professors assumes a pool of talented young researchers from which the most competent will be drawn. These young people, like apprentices, are in a dependent position; they take part in the various academic tasks in the department but not in the decisions. In recent years their number has increased as well as their "seniority". In some cases, they reach a stable position quite rapidly after their Ph.D., which means that they can remain in higher education even if they are not promoted to a professorship.

But in other countries, they will spend a long period in unstable employment, through a succession of short-term contracts. In some disciplines, like biology, a post-doctoral period is becoming a common requirement for young researchers. This period, which can last up to several years, may be followed by several short-term contracts in research projects with occasional teaching assignments. Many researchers reach the age of 35 or 40 years without any experience of stable employment. In the United Kingdom in 1996-97, 40 per cent of academic staff aged 36-40 were on fixed-term contracts. For research staff alone the proportion jumps to 95 per cent for all age groups. [16]

Frequently, contracts are signed for the duration of a research project and there is no guarantee against the early termination of the contract. Sometimes the eagerness of young researchers to work in higher education is such that they agree not to receive the statutory payment for breach of contract and the end-of-contract compensation. [17]

Part-time contracts

The increasing use of part-time or fixed-term contracts is visible in teaching as well as in research jobs. It is partly due to the new organization and funding arrangements of research and to the new missions of institutions. In the United States, in 1997, part-time staff accounted for 42 per cent of all staff [18] and the fastest growing part of the higher education system; the sector of public two-year colleges also relies most on such staff.

Part-time work may respond to the needs of either the institutions or the employees themselves. For staff, part time allows for another activity alongside their work in the institution. For employers, it is a way to introduce greater flexibility in the management of their human resources. Part time can be offered to permanent staff (including tenured staff) or to staff on fixed-term contracts. It is defined as a fraction of the full-time work as specified by statutes or collective agreements. Staff on short-term contracts can also be paid by the hour.

When it is permitted by legislation, collective agreements or by the institution's rules, an academic may work part time for two or more universities, in different circumstances. Institutions sometimes like to employ specialists in a discipline or field but their teaching and research needs do not justify hiring someone full time. Part-time contracts might also

[16] See "Contract lecturer campaign hots up", in *The Times Higher*, Nov. 1998.

[17] See "Cambridge flouts concordat", in *The Times Higher*, 14 Jan. 2000.

[18] Report of the Sloan Conference on part-time and adjunct faculty, 1998.

enable them to attract a world famous researcher they could not afford full time, in order to secure private contracts or public funding. Not all such situations of shared work concern "star professors" commuting in jets from one continent to another. They also include contract researchers or young teachers working in two neighbouring institutions trying to make ends meet.

Dual employment may create conflict in relation to intellectual property, perhaps less with teaching than with research. Labour contracts may include provisions allocating such property rights but monitoring of such provisions is uneasy. In systems regulated by statute, labour clauses are not negotiable and adjustment to such situations can be almost impossible to achieve without altering the legislation or creating special exceptions.

Staff members may also hold part-time work with private firms. In France, staff and managers of private firms can be appointed to work part time in universities as associate professors while keeping their contract with their employer. This also happens when academics are allowed to manage a business they have created (sometimes with the financial help of their institutions) without having to resign from their university position. The legal framework for solving property rights problems can, in such situations, be quite complex to design, sometimes beyond the competence of university administrations. Nevertheless, when outside work of staff members impinges on their duties to their institutions tighter regulation is necessary. The Italian Government [19] recently stiffened the regulation on academic employment in order to avoid much published cases such as professors never showing up in their classroom.

Another type of part-time work is chosen by employees for personal reasons – parents who wish to devote more time to the upbringing of their children may reduce their professional activities during a certain period. As it is compatible with academic work, this choice is popular with mostly female staff, especially when labour legislation is favourable to families.

But part-time work is not always a choice for employees, it can be forced on them by their employer. Such situations are found in higher education for people employed and paid by the hour. They have very short contracts, one semester or one year. On the termination of their contracts, they may be offered less hours and a reduced pay. In England, staff paid by the hour accounts for 80 per cent of part-time staff; they have no security whatsoever and work in sub-standard conditions. [20] In periods of financial crises, due to fluctuations of student enrolments or public budget restrictions, their dismissal is a favourite option for it is less costly than redundancy of other staff or early retirement schemes. They also can be offered renewed teaching opportunities when things get better and therefore play a role of shock absorber much appreciated by the institutions.

[19] "Italy targets moonlighting dons", in *The Times Higher*, 5 Feb. 1999.

[20] "Part-timers' lament", in *The Times Higher*, 17 Sep. 1999.

Pay levels

In these changing times, how do academics compare with the rest of society? Does their income diverge from those of groups with similar qualifications like the professions? Such a comparison is very hard to make. It can be based on objective criteria: the level of education, measured by the duration of studies, obviously gives academics an edge over most other professions. The level of responsibilities, a disputed concept, does not favour them. Professional autonomy is also often cited as a valuable feature of academic jobs. How relevant are such criteria when one has to compare high officers in the army, business executives and university professors?

In countries where a uniform pay scale applies to academics and to other groups of public employees, such a comparison has to be made from time to time. In the United Kingdom, comparability of pay for different categories of public employees is periodically assessed. [21] Even in this case, the differential adjustment of compensation for any given category is more often based on a broad evaluation than on the use of explicit criteria.

The relative increase in pay secured by one occupational group is sometimes achieved through confrontations in the form of demonstrations or strikes. It may also be granted willingly when employers find it hard to recruit and to keep staff with a given qualification. A profession that does not attract candidates or that suffers constant loss to other industries or to other countries deserves economic or social "upgrading".

This principle, when applied to academics, usually leads to the conclusion that their situation is quite favourable. Qualified applicants abound and no massive brain drain occurs either nationally to private enterprise or internationally. Such a brain drain can be observed in certain countries and in specific circumstances, notably caused by political crisis, a deficit of appropriate training or a short-term imbalance in the labour market. Despite the traditional cosmopolitan tradition in academia, the international mobility of university staff is fairly limited. If British academics may be tempted by the higher salaries of their American or Australian colleagues, very few work overseas. [22] The number of academic expatriates is lower than it used to be, because of the process of nationalization of higher education that took place in developing countries after decolonization in the second half of the twentieth century.

It is possible, however, that universities cannot fill positions in specific disciplines where a sudden demand from industry creates a shortage of research-trained manpower that translates into large salary increases. This has occurred in fields like engineering, computer science, biology or business administration. When feasible, universities solve this problem by paying more for staff in disciplines that are in short supply. In some countries, however, salary differentiation is not allowed among professors of different disciplines. This does not imply that universities are helpless. Some non-financial incentives can be as effective in attracting and keeping staff. Academics can be offered extra funding or staff for their research or they can be allowed to supplement their income

[21] See Bett (1999). The Bett report advocated a substantial increase in salaries at the beginning of the academic career and for senior staff holding responsibilities.

[22] "Academic chances abroad", in *The Times Higher*, 9, 16 and 23 July 1999.

with fees for services performed outside the institution such as through consultancies. They can also be helped in the creation of a business that would market applications of their research with facilities like incubators or business parks. Such activities are sometimes organized by the universities themselves, sometimes only tolerated by them. They are likely to bring to institutions themselves as well extra resources that could be used to finance teaching-related projects. They may also benefit research, applied and fundamental alike. There is, nevertheless, a risk that they absorb too large a share of the working time of staff and distract them from their professional duties. They are also likely to create tensions among members of staff who do not have equal access to such opportunities for improving their income.

When pay is deemed insufficient for all staff, as has been the case in developing countries [23] or in countries in transition, [24] many are tempted to hold second jobs, a situation highly detrimental to the productivity of higher education. In many countries where demand for higher education has exceeded by far the number of places funded by public budgets, private institutions have mushroomed, in which the faculty is made up of "moonlighting" staff from public institutions sometimes teaching in the evening in buildings rented to the same institutions. Although it may be a very cost-effective way of expanding higher education, it certainly has a negative impact on the quality of education.

When compensation of teaching staff is too low, individuals respond in a way that is rarely supportive of quality in education and in research.

Incentives and performance-related pay

Teaching staff salaries are a controversial subject not only because of their level but also because of new features that are being introduced in pay policy by the State or by the institutions. The first issue is the measurement of staff performance and the linkage of pay with performance. Inspired by practices considered efficient in private enterprise, performance-related pay (PRP) is looked at suspiciously in the public sector and particularly in education where performances are quite hard to measure.

One step towards PRP is the breaking down of pay into various components including bonuses and incentive payments. In higher education, there is a growing use of incentive payments linked to performances in the different activities of staff. They tend to focus more on the research activity, which is perhaps easier to assess than teaching, for which performances are more difficult to measure. As a result, teaching is less valued by staff and the quality of instruction may suffer.

Incentives are also provided from the income of intellectual property acquired by higher education. This income, arising from both teaching and research, is shared between the institution and the individual academic. Opportunities for creating such income are not equal for staff members of different status and disciplines. When institutions take a liberal

[23] Guadilla (1996) cites Costa Rica as an example of such a situation.

[24] OECD (1999): "Most teachers have a second or a third job, usually in a private education institution ... (such) jobs take a large part of the time that academics could devote to research ...".

stand on this matter by keeping too small a share of this income, not only do they forego financial resources but they also create tensions among academic staff. On the contrary, if they try to capture most of this income, they destroy the incentives for the staff to create and disseminate goods or services that are useful to society.

Labour relations

Recent trends in labour relations in higher education point to decentralization of negotiation and decision. In systems of public employment, decisions concerning working conditions or income supplements are increasingly made at the level of the institution. In countries where private labour contracts prevail, collective bargaining has become generalized. Where collective bargaining and agreement are well established, the focus tends to shift from the national to the local level. In Finland, Sweden and Australia more weight is put on bargaining at the institutional level. These shifts have clear repercussions on unionization and on the internal structure of unions.

However, a potential exception to the generalization of collective bargaining may be noted. In the United States, courts are beginning to exclude academics from the benefits of collective agreements on the basis that, when they take part in the administration of their university they should be considered as managers and not employees.

Impact on staff of new management practices in higher education

After a transition from a collegial decision-making system, in which professors were prominent, to a "democratic" setting, in which power was distributed among several groups of stakeholders, higher education institutions are almost everywhere experiencing another transformation of their governing structure. At the various levels of university administration, executives are gaining power to the detriment of committees and elected bodies. At the same time, governing boards increasingly include representatives of external partners and providers of funds of the institutions.

As a result, professors' influence in the operation of a university is fading and they are tempted to pull out from committees and invest their energy in their research activities and the search for external funding. This attitude contributes, together with other centrifugal forces, to the weakening of the institutional structure. This entry of outsiders in the governing bodies is perceived as a threat to academic freedom and a submission to the market forces.

A more problematic access to the profession

The doctorate is becoming the standard requirement for entering the academic profession. There still is a wide variation across countries in the share of faculty holding a Ph.D. or a similar degree. In poorer countries where the scarcity of resources and the relative youth of institutions prevent the training of doctoral students locally, the cost for recruiting and training staff abroad is very high. This explains the low proportion of staff

with a doctoral qualification. Teaching is done in part by local graduates with very little experience in research, knowledge of their subject or teaching methods. As the higher education system develops, the level of qualification increases and the older generations of teaching staff are expected to acquire a research degree if they want to keep their position or get a promotion.

In older universities, in which large numbers of research students are trained, doctoral students constitute an intermediate category between students and staff. Most of them aspire to an academic career but only a few will succeed. Their number is growing and they tend to concentrate on a limited number of institutions that are large enough to afford research centres, scientific equipment and libraries that are needed to train a significant number of researchers. In these universities, doctoral schools can be set up to provide a proper training environment. These research students, or at least part of them, usually get financial support during their training period to enable them to study full time. Such a support can be either a grant or a temporary job involving work in teaching or research. In some countries, every student entering a doctoral programme is entitled to financial support for a given period. In other countries, research students have to compete for a limited number of grants or temporary teaching or research jobs. In countries where there is no entitlement to financial support, research students do not find similar opportunities according to discipline. Grants tend to be concentrated in sectors where training is more structured, such as the sciences. Temporary jobs also vary with the number of undergraduate students and of research contracts available to institutions. Increasingly, students are advised, after completion of their doctorate, to work for a time in other research centres (in the country or abroad) to complement and diversify their research experience. Such placements, called “post-doc”, tend, in some disciplines, especially scientific, to become a requirement for being appointed to permanent positions in higher education.

Transition to work for research students

Young researchers wishing to work in higher education institutions face several problems. Prospects of finding permanent employment in a university are difficult for students to assess in advance when they contemplate entering a research programme. These programmes take a long time and the information available on job openings at the beginning may prove erroneous. The need for teaching staff is likely to fluctuate as students change their subject preferences or research gets more or less successful. This helps to explain why shortages or deficits of doctors or qualified researchers have been experienced or forecast in recent decades.

In surveys on working conditions of university staff conducted in different countries, most academics admit that access to their profession has become more difficult than it was when they were first recruited. It looks as if the level of what is required from applicants to university positions has been rising constantly.

In Europe, the search period between the completion of a doctorate and the first stable employment has lengthened. It is difficult to know whether it is due to increased competition on the academic labour market and to higher requirements for recruitment or to the development of casual scientific employment.

It is possible to argue that researchers, faced with the rising difficulty of getting a stable position in higher education, try to acquire more experience by working on fixed-term contracts in order to enhance their chances of being recruited. This is the rationale of post-doctoral placements. But it should not be taken for granted that vacant academic positions are offered to more experienced candidates: French researchers who have spent one semester or more in a foreign university on a post-doc are less likely to be recruited on their return than those who stayed in their country. It could equally be argued that the changing conditions of university research rely on a pool of cheap and flexible manpower, a proletariat of qualified researchers that are kept in an unstable and dependent situation for a period of time. This is what a large number of university staff perceive, thus pushing them to organize collectively for improvements in their employment situation. In the United States, assistants are getting organized and threatening or undertaking strike action. In Germany, casual university staff have also succeeded in improving their employment conditions by such means.

Employment prospects outside higher education

Employment prospects for Ph.D. graduates depend also on opportunities outside university and related research positions, which are mainly found in large firms and administrations. Small and medium businesses offer less research positions, with the exception of information and communication technology firms and a few other sectors where innovation is very high. In these sectors, young researchers are also likely to start their own business when they are able to raise the appropriate funds.

When the private labour market is very active and wages are high, salaries in the university sector are likely to be better.

A new teacher professionalism

There are clear signs that teaching in higher education is getting more professional, following a movement that started earlier in primary and secondary education. It was once widely thought that there was no need to train academics in teaching; rather, research training and scholarship alone would ensure the quality of teaching. This is possibly true in advanced studies and research training. At postgraduate level, classes are small and quite homogeneous as far as students' knowledge and skills are concerned, but widening access to higher education has introduced considerable heterogeneity in the first year of university studies. This creates problems that experienced lecturers may overcome but creates a need for some kind of formal training to equip newly recruited staff with methods and basic knowledge of pedagogy. The introduction of systematic evaluation of teaching in universities which has been spreading in the world since the 1990s has shown that staff development programmes were badly needed for all categories of academics. When evaluation reveals deficiencies and incompetence in teaching staff, they often demand of institutions ways of remedying them through suitable training opportunities.

Experiences of initial training specific to higher education

Doctoral programmes are devised to familiarize young researchers with the different functions they will face in their higher education careers. Some universities are beginning to offer their teaching assistants induction programmes that consist of a series of conferences and seminars or assign to each newly appointed staff a mentor, a more experienced colleague, to help them with their first steps in teaching. In France, centres for higher education teacher training have been created for monitors (*moniteurs*).

Staff development

Although staff development programmes, including continuous training, are common for clerical and technical personnel, the introduction of programmes specifically designed for teaching staff is fairly recent and quite limited. This is due to the prevalent belief that the very nature of higher education requires that academics continuously keep their knowledge and skills up to date.

In countries where teaching staff shows a high level of qualification, the implementation of programmes of quality assurance has revealed that the observed deficiencies in teaching had sometimes to do with the teacher's knowledge of its subject, but were generally related to ignorance of pedagogy and neglect of the available knowledge on teaching methods and techniques. If it is quite easy to set up courses in these subjects, it is extremely hard to convince staff to attend them.

When the overall level of qualification is deemed too low, as it is in a number of poor countries, the task is even more difficult, especially because of the lack of research. Effective programmes should combine doctoral training abroad for younger faculty and collaborative work in the institution and in the region.

Towards professional accreditation

The Institute for Learning and Teaching was created in the United Kingdom in 1999 in the wake of the Dearing report on higher education, with the aim of becoming a professional organization of higher education teachers. Its three main tasks are accreditation of training programmes set up by universities for their teaching staff, funding of research on higher education pedagogy and stimulation of innovation in teaching. Membership of the institute, acquired after an examination of professional competence, is expected to have an impact on careers, although it is not clear whether it should become a requirement for promotion or entry to teaching. It is too early, however, to assess the impact of this scheme.

The social status of the academic

In general, the rising average level of education of populations shortens the social and cultural distance between teachers and the rest of society. In the most developed countries, this long-term trend affected first teachers in primary schools, then in secondary schools. It now concerns academics who feel a loss of prestige in society. Their participation in public life and in political decision-making is less distinctive. As experts, they have to compete with other professionals, advisers and consultants, who have acquired a notable influence in many sectors.

The revolution taking place in communication, and in the media especially, has deprived them of the privileged position they held on the cultural scene as producers and distributors of knowledge. Every type of knowledge is now made accessible to everyone almost immediately. Information can be processed and presented by many people who do not always abide by the ethical and methodological rules that are traditional in university research. The general public and sometimes political authorities do not clearly distinguish between academics and people in new professions emerging in the knowledge society.

Academic freedom around the world

With the progress of human rights around the world, the number of cases of blatant violation of academic freedom is diminishing. The development of communications and improvement of information networks enable the international community to detect and publicize such cases rapidly and to bring pressure to bear on the countries or the institutions that are concerned. In a number of countries, authoritarian governments and religious fundamentalists threaten the freedom of speech and even the life of intellectuals and academics. In Algeria, the most qualified teachers have to leave the country at a time when student numbers are rapidly growing. In Iran, private institutions are closed for religious reasons. In Uganda, higher education teachers' union officials are jailed. In Serbia, universities are caught in the crossfire of civil war. On average, however, the situation has improved over the last decades.

A new type of pressure, more insidious than political repression, is felt in many developing countries. Intellectuals [25] and academics perceive the globalization of the economy and the spreading of its related ideology, conformism and a single way of thinking, as a new form of threat to the fundamental principle of academic freedom.

[25] In the *American Association of University Professors Journal, Academe* (July-August 1999), several articles point to this opinion in Argentina, India and China.

How do academics react to their changing environment?

The morale of academics and their reactions to the evolution of their environment have been surveyed in many countries, after the pioneering Carnegie study (Altbach, 1996). Several points stand out:

- a general feeling of increasing difficulty of academic work, stress and deterioration of the working environment, generally attributed to growing student/teacher ratios;

- a sense of loss of individual autonomy due to the development of new tasks in relation to accountability to various partners (writing reports, filling out evaluation forms, drafting projects and plans);

- a worsening of the social position of academics who do not feel supported enough by government or society.

Nevertheless, a majority of academics enjoy their work and few are tempted to leave higher education or even their country when they are in a stable position. Only casual or unstable faculty and researchers, especially those who are highly qualified and unable to find stable employment feel unsatisfied and look for employment in other sectors. One can conclude that despite the problems above, this profession remains attractive, with the exception of certain disciplines for which universities experience recruiting difficulties.

4. Conclusion

Have higher education teachers lost their specificity or is the profession breaking down in several specialized trades coordinated by a managerial institution? Two contradictory evolutions have affected higher education personnel in the last decades: the nature of work has diversified to such a point that it is difficult to speak of one profession. The traditional picture of the professor combining high-level teaching and advanced research in a self-governing community of scholars has become blurred. Academics are in fact doing different jobs. They sometimes do them in succession as their career evolves. Some of them succeed in doing them all at the same time for a period of time; but for a growing number what they experience is a relatively narrow specialization in research, teaching or training, as universities witness a diversification of their missions. At the same time, the way young researchers are trained and gain access to academic positions is becoming more uniform across countries and disciplines. Conditions that used to be specific to a country or to a discipline are slowly disappearing. The American Ph.D. model is being adopted all over the world, replacing a variety of programmes differing in length, content and assessment. Doctoral studies tend to concentrate on a small number of research universities where they are organized in new institutional frameworks. A doctorate degree is becoming the standard qualification required for being employed in a permanent academic position. Administration and firms start employing staff with the same research training as academics with which they enter in partnerships. It is a paradox that people who are more and more trained in the same way are called to work in settings that are becoming increasingly diversified.

In this sense, higher education staff is going through a crisis. It is not in the sense that academics are dissatisfied with their working conditions or feel out of place with their environment, the crisis is deeper since it affects the very future of the institutions in which they work. No one at this moment is able to forecast what will happen to the universities in the next decades. The momentous changes occurring in our societies at the moment concern precisely that which is the core of academic activity – the production and transmission of knowledge. New technologies in information and communication seem to portend in the near future a reconstruction of the patterns of knowledge production and skills learning. It is not certain that universities are the places where these new processes will take place if they keep their traditional structures.

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