# 5 Human resources in higher education

This chapter presents an analysis of the policy issues related to human resources in higher education. Expenditure on human resources in higher education accounts for about two-thirds of current expenditure by higher education institutions across OECD countries. The quality of institutions' teaching and learning, research, and engagement with the wider world depends importantly on the skill and ability of the higher education workforce, and the conditions in which they work. The chapter describes the key dimensions for analysis of human resources in higher education. It examines i) policy issues relating to attracting, recruiting and selecting the higher education workforce; ii) the way the work and careers of the higher education workforce is structured; and iii) policies to encourage good performance from the higher education workforce. The discussion focuses on how government policies in these domains aim to steer the practices of higher education institutions and staff; and examines what is known about the impact of these policies on the performance of higher education institutions.

## 5.1. Analysing human resources in higher education

The analysis in this chapter examines the governance and management of human resources in higher education. The term "human resources" in higher education refers to all those employed in higher education institutions. It includes academic staff (those whose primary role is teaching or research or supporting teaching or research), those providing professional support for students (academic, health and social support), those involved in the management and administration of institutions, and personnel who support the maintenance and operations of institutions (security, ancillary services) (UOE, 2018[1]).

The principal focus of the chapter is academic staff and the policies that affect them. This reflects the central role of academic staff in determining the quality of teaching, research and engagement. Other staff – especially professional staff in specialist positions or managerial roles who are highly qualified and well paid – are of increasing importance in higher education. They play critical roles in supporting well-performing institutions. While the numbers in clerical roles in higher education institutions are declining, those in professional, managerial and technical roles are increasing. These staff account for an increasing share of total human resources expenditure, and in some systems professional support and management staff already outnumber academic staff (Bossu and Brown, 2018[2]). The binary division between academic and professional staff ("faculty" and "staff" in North American terms) is being blurred by an emerging partnership in many domains, such as student services, research management, widening participation, educational development, and learning technologies.

The chapter begins by describing some of the key patterns in human resources in higher education, how these have evolved and the changes currently faced. It then reviews three broad aspects of human resource management in higher education systems: attracting and retaining a skilled workforce; structuring the workforce; and encouraging high performance from this workforce. The analysis acknowledges that the extent to which public policy directly influences human resources management in higher education institutions varies considerably between OECD member countries. In some cases, higher education institutions function much like private businesses in terms of human resources, while in other cases recruitment, terms and conditions and rewards for staff are heavily regulated by government. Throughout the chapter, special attention is paid to human resource policy challenges facing many higher education systems, including the use of less costly labour inputs in many systems, as institutions strive for efficiency and flexibility, and the use of new digital technologies to reduce costs while preserving or enhancing quality.

## 5.2. Key trends in higher education human resources

The work that academics perform is being transformed by trends in, and beyond, higher education systems – reshaped by changes in teaching technologies, in the financing of higher education, and in the legal and contractual bases of employment.

### *Digitalisation may begin to change the economics of higher education and the organisation of academic work*

The digitalisation of learning and teaching is not simply a change in the mode of educational delivery from face-to-face to online learning and blended learning. In some higher education systems, digitalisation has the potential to transform the economics of higher education, how academic work is organised, and how learners and teachers relate to one another and to their institutions. Where instruction is delivered at very large scale, through global learning platforms such as EdX and Coursera, unit costs can be sharply lower than face-to-face instruction. Digitalisation can also change academic work, transforming the tasks of course development, delivery and assessment, which may be outsourced, or a shared responsibility with new types of professionals who are specialised in course design or assessment. This changes the terms and conditions of academic work, as well as the expectations placed on academics. Digitalisation may also

facilitate the move from academic-centred teaching towards student-centred learning. In doing so, however, it simultaneously creates new opportunities and places new demands on learners and on teachers.

### *Higher education funding is also reshaping academic work and careers*

As discussed in Chapter 2, expenditure on higher education across the OECD during the last decade has continued to rise (OECD, 2019[3]). The sources of funding have also been changing in many countries, with reduced emphasis on government funding, and greater reliance on fees and third-party funding. As highlighted in Chapter 4, methods of funding have changed as well, with governments relying increasingly upon performance-linked funding and competitive funding instruments. These changes result in less certainty of funding levels, leading to pressures for flexibility in staffing. In addition, this funding shift promotes increased entrepreneurial behaviour in higher education, with institutions seeking to develop opportunities to earn income.

This funding shift can reshape academic priorities and values, creating, in particular, a greater need to be responsive to student and stakeholder needs. An increased reliance on earned income often means more variability in revenue levels between institutions and, thus, different resourcing capacity between institutions. It also changes the market for academic staff, with an increase in value for "academic entrepreneurs" and academic staff who can improve performance on market-based indicators (for instance, publications in highly-cited journals, patents, competitive research grants, etc.).

### *Specialisation of roles is growing in higher education*

Changes in technology and funding in higher education have also led to greater differentiation of the academic career structures, tasks and working conditions (Frølich et al., 2018[4]). They have led institutions to place a growing number of academic staff in specialised roles with responsibility solely for teaching, research or engagement. This trend represents a shift from a tradition in which an individual was responsible for all stages of academic activity – course design and development, teaching, assessment, research and knowledge transfer (Coates and Goedegebuure, 2012[5]),

Specialisation is often accompanied by a stratification of roles; researchers – especially those with the ability to generate revenue from research contracts, patents or other innovation activities – are particularly valuable to their institutions, so that research-intensive positions may offer better conditions than teaching-oriented ones.

In many higher education systems, academics play a reduced role in institutional governance, while professional staff play a wider role. Professional staff take on the responsibility of meeting new challenges in institutional management, such as facilitating the responsiveness of institutions to student and external stakeholder needs, marketing, raising income and responding to accountability demands.

This specialisation represents an important change in academic culture, academic careers, and the governance and management of higher education institutions.

### *Non-standard employment is also growing*

Institutions are under pressure to use their teaching workforce in more flexible ways, so as to respond to demand shifts and manage costs. The need to maintain high-quality research and to manage the uncertainties of revenue mean that universities are confronted with tight cost pressures. This has led institutions in some countries to increase the share of staff who work in higher education with non-standard forms of employment (ILO, 2019[6]).

While there is no official definition of "non-standard employment", the term typically encompasses work that falls outside the "standard employment relationship" – full-time, continuing employment, in which the employee is accountable to an employer and/or manager (ILO, 2016[7]). The move to non-standard contracts is in line with global trends for casual work in the wider labour market (ILO, 2016[7]). This trend has raised questions about how institutions can ensure that their teaching quality remains of high quality.

## 5.3. Attracting, recruiting and selecting the higher education workforce

The first core task of institutions in terms of human resource management is to mobilise human resources, i.e. attract, recruit and select staff. Institutions need to take decisions regarding the hiring process (how will they hire?), the profile of those they hire (who will they hire?) and their number (how many will they hire?).

These tasks may be carried out by higher education institutions in the same way as by a private firm, subject only to the requirements of labour law. In many higher education systems, these decisions are structured by collective bargaining agreements and norms set by associations, (such as associations of higher education institutions or rectors' conferences), or – in some cases - by higher education legislation that stipulates required qualifications, recruitment methods or criteria for selection. In many systems, high levels of public authority continue to be involved in recruitment and selection of staff in higher education, either because:

- higher education institutions are state agencies (rather than separately established public bodies), meaning that they need to comply with public sector employment law; or
- there are legal provisions relating to employment in all public higher education institutions.

External quality assurance systems may structure decisions as well, as institutions seeking accreditation may have to comply with particular human resources management standards, for instance.

The following sections give some examples of how governments intervene to shape institutional practices to address performance problems that may emerge.

### *Recruitment process*

Academic recruitment affects the performance of higher education and its financial sustainability. Some employment contracts offer lifelong employment, meaning the consequences of a poor recruitment selection are likely to be costly. The development of disciplines; expansion and contraction of units; and the evolution of student numbers may vary in unpredictable ways and may be outside the control of higher education institutions. Academic recruitment is a means by which institutions can effect change in order to improve their quality and efficiency. However, lifetime employment contracts may limit the scope for change and flexibility.

Discrimination (e.g. on the basis of gender or ethnicity), favouritism, or political considerations may override considerations of merit, leading to inefficient use of human resources and low-quality teaching and research. Thus, recruitment processes should be designed to be fair, transparent and consistently applied to increase the probability that the best candidates are recruited. High levels of academic inbreeding and gender imbalance in many systems indicate that this may not be the case, and that recruitment methods often fail to ensure equal opportunities and deal with the negative effects of conflict of interest (van den Brink, Benschop and Jansen, 2010[8]). Academic inbreeding, the practice of an institution hiring its own graduates to the professoriate, risks overlooking stronger candidates from outside the institution and creating an institutional culture that is unreceptive to change (Altbach, Yudkevich and Rumbley, 2015[9]). It also leads to diminished research productivity (Horta, Veloso and Grediaga, 2010[10]).

Many governments have policies that aim to ensure that academic positions are widely publicised, open to all qualified candidates, and prioritise academic diversity and objective dimensions of candidate quality (European Commission/EACEA/Eurydice, 2017[11]). Governments also rely on general equal opportunities legislation and quality assurance mechanisms. 23 jurisdictions in the European Higher Education Area (EHEA) have standards on recruitment procedures as part of external quality assurance reviews (European Commission/EACEA/Eurydice, 2017[11]). The Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) state that institutions "should apply fair and transparent processes for recruitment" (ENQA, 2015[12]). Governments can also promote the collection, analysis and publication of data on the profile of staff, which can put pressure on institutions with higher incidence of academic inbreeding or with gender and ethnic imbalance in their staff. Box 5.1 presents some examples of policies to address academic inbreeding.

### Box 5.1. Examples of policies to address academic inbreeding

**Open and competitive selection by an independent agency**

In **Spain**, the *Ramón y Cajal* programme was launched by the government in 2001 as a tool to reduce inbreeding and attract talented staff through the development of a new hiring mechanism in public universities (Sanz-Menéndez et al., 2002[13]). This initiative establishes five-year contracts assigned through an open and competitive selection by an independent state agency. Successful candidates are granted the opportunity to work in research centres and higher education institutions under a tenure-track model, and enjoy similar wage conditions as the professionals hired through standard processes. Expenses are mostly covered by the central government. Data show that this policy has increased the number of foreigners and international researchers, and has attracted employees with no prior links to the institution (de la Figuera, 2005[14]; Ministerio de Ciencia e Innovación, 2011[15]). It has also improved research activity (as measured by publication rates), publication in high-impact journals and citations (Torres-Salinas and Jiménez-Contreras, 2015[16]).

**Academic job vacancies information network**

**Japan** is addressing high rates of academic inbreeding through measures to make hiring processes more open and transparent. In 2001, the Japanese Science and Technology Agency created the Japan Research Career Information Network (JREC-IN), which provides information about academic job vacancies. In addition, registered users receive notifications of employment openings. The number of accesses to this database doubled between 2002 and 2012. It has brought a wider range of candidates, making it more difficult to choose a specific candidate from the same university when there are others with better academic profiles (Horta, Sato and Yonezawa, 2010[17]).

**Combination of professional stability and anti-inbreeding practices**

The century-long **German** regulation of hiring and promotion in higher education, known as the *Hausberufungsverbot*, restricted preferential treatment and appointment of individuals who are already working or undergoing doctoral training within an institution (Kreckel, 2017[18]). The lack of upward career opportunities resulting from this regulation led to an amendment of the Higher Education Framework Act in 2002. The reform now allows institutions to offer tenure-track posts to their doctorate recipients provided they pass a competitive selection process and prove outstanding skills (Kehm, 2006[19]).

## *Staff profile*

The workforce in higher education institutions is changing. And the academic profession that makes up a key part of this workforce is changing as well. There are now more professional staff in many systems, and in some, academic staff are now in the minority (Bossu and Brown, 2018[2]). Entrants to the academic career are often older, because of cumulative periods as doctoral and post-doctoral researchers and teaching assistants before a career position becomes available. In many systems, academics are retiring later, reflecting the ageing of the population, the abolition of compulsory retirement in some countries, and the attractiveness of academic work for those in the top tiers of the career structure. More academic staff are entering the profession with previous professional experience outside of academia. In many systems, women's representation has improved, but gaps at the top levels of the career hierarchy remain in many OECD countries.

In some higher education systems, public institutions have much autonomy to take staffing decisions. In other systems, however, governments set policies on the profile of staff by regulating the composition of the workforce of institutions and by collecting, analysing and publishing information on trends in institutional staff profiles.

Depending on the governance arrangements, the staff profile in higher education institutions may be:

- regulated *ex ante* by governments;
- influenced by the availability of targeted funding for staff posts;
- the focus of data collection, analysis and publication to inform and steer the behaviour of the system (e.g. the US National Study of Postsecondary Faculty (NCES, 2019[20]));
- the subject of *ex post* external quality review, as in Australia (TEQSA, 2017[21]).

### *Staff mix – academic, professional and managerial staff*

The profile of the higher education workforce – academic, professional and managerial staff – is also changing in response to the diversification of the student intake, digitalisation, internationalisation and the complexity of institutional management. Higher education professionals sit in a continuum of roles ranging from academic positions to professional/administrative roles not primarily focused on teaching or research but managing services to support teaching, research or engagement (Gordon and Whitchurch, 2007[22]; Schneijderberg and Merkator, 2012[23]).

As the student body has become more diverse, institutions may respond by recruiting professional support staff to:

- provide a wider range of services and support for students;
- develop student-centred approaches to learning and new forms of digital or digitally-supported delivery;
- give effect to internationalisation efforts;
- support the transition of graduates to the labour market.

Box 5.2 presents some examples of policies that have resulted in institutions recruiting additional professional support staff.

### Box 5.2. Policies resulting in an increase of professional support staff in higher education

**Support for equality**

The **United Kingdom** has adopted a set of regulations that require universities to support equality. The Race Relations Act of 2000, the Disability Act of 2005 and the Equality Act of 2006, aggregated into the Equality Act of 2010, require higher education institutions to ensure equal opportunities in regard to ethnicity, disability and gender. Universities have responded to this framework by hiring professional staff, such as learning support counsellors or student advisers, focused on meeting the demands of students potentially subjected to discrimination and disadvantage (Baltaru, 2019[24]).

**Support for employability**

Since 2008, **France** has required universities to create units that provide guidance to students on labour market opportunities (Kavka, 2017[25]). These units, known as *Bureaux d'aide à l'insertion professionnelle dans les universités* (BAIP), are staffed mainly by professionals who are responsible for advising students and promoting work and internship offers (Chaudron and Uhaldeborde, 2008[26]).

**Support for disability**

In **Brazil**, Decree 5626/2005 requires universities to guarantee students with hearing impairment access to interpreters of Brazilian Sign Language (Bruno, 2011[27]). Qualitative evidence suggests that having professional staff focused on the needs of individuals with hearing disabilities benefits the educational performance of those students (Martins, 2006[28]; Rossetto, 2009[29]).

Professional support staff may help all groups of students and thus, increase the efficiency of higher education (i.e. increase persistence, improve progression and completion rates, and decrease time to completion). They may also improve the quality of the student experience, skill outcomes and labour market outcomes, thus also improving equity. Evidence of the impact of professional support staff on student outcomes is limited. However, a UK study used longitudinal organisational data from 100 British universities in order to assess whether the increase in professional support staff in the early 2000s had an impact on university performance. Findings indicated that an increased ratio of non-academic staff to students was related to higher degree completion rates (Baltaru, 2019[30]).

In addition, with the massification of higher education, institutions are creating more dedicated managerial positions to support academic work and to direct the work of increasingly complex institutions and their diverse employees. This management workforce:

- supports quality assurance internally as well as the demands of external reviews;
- staffs the marketing function, in environments where institutions compete for students;
- manages the challenge of internationalisation initiatives;
- supports integration of education, research and innovation, helping institutions to contribute further to their communities.

Box 5.3 presents some examples of the need for higher education to be endowed with an expanded cadre of managerial staff to deal with issues such as knowledge transfer, real estate management and entrepreneurial activities.

### Box 5.3. Policies resulting in an increase of managerial staff in higher education

**Offices for technology transfer**

In the **United States**, the 1980 Patent and Trademark Law Amendments Act (known as the Bayh-Dole Act) allowed universities to register property rights on inventions and products produced by their researchers using federal funding. This regulatory framework led many higher education institutions to establish offices for technology transfer to manage the commercialisation of research. These offices employ staff in marketing, patenting and licensing. Evidence suggests that this approach has improved American universities' performance in commercialising research (Goldfarb and Henrekson, 2003[31]) .

**Real estate management units**

In the **Netherlands**, the government transferred higher education estate ownership to universities themselves in 1995. Case-study evidence indicates that this decision led universities to develop real estate management units composed of managerial staff with substantial private sector experience. These units manage universities' properties and have become a substantial proportion of the higher education personnel (Engelen, Fernandez and Hendrikse, 2014[32]).

**Entrepreneurial universities**

In the **United Kingdom**, the 1988 Education Reform Act, the 1992 Further and Higher Education Act, and the 2004 Higher Education Act have made universities more autonomous and have triggered internal changes that aim to make universities more adaptive, resourceful, and competitive (Middlehurst, 2004[33]). Specifically, this legislation has prompted universities to expand their managerial staff, creating offices devoted to technology transfer, marketing, management of public affairs and globalisation. These offices have non-academic employees whose roles relate to university-business links and internationalisation (Shattock, 2009[34]).

In England, the former Higher Education Funding Council for England (HEFCE) published trends in the composition of the workforce by academic, professional and support roles; and noted "the shift in professional service roles from transactional services to a more strategic approach to higher education institutional support" (HEFCE, 2010[35]). Quality assurance agencies also play a role in reviewing the quantity and quality of human resources, especially in institutional audits and evaluations. For example, the Institutional Evaluation Programme (IEP) provides independent evaluation of institutional capability to higher education institutions that are members of the European University Association (EUA, 2018[36]).

In many higher education systems, the expanding ratio of executive and managerial professionals to academic staff has fuelled heated debates about its impact on the institutional costs (Kelchen, 2018[37]), and has caused consternation among academic staff, who perceive their role in the governance of higher education institutions to be diminishing.

#### *Distribution of staff by field*

Where demand for graduates and enrolments is growing – for instance, in fields such as computer science or health professions – instructional staff numbers may need to rise to meet student and labour market demand and maintain the quality of provision. In other fields, and other higher education systems, decreasing enrolment has led institutions to reduce staff numbers in those fields to keep operating at an efficient level.

Institutions may need to pay staff in some fields more than others, if those staff could expect to earn more outside of higher education (Hemelt et al., 2018[38]; Stange, 2013[39]). To avoid staff shortages in these fields (or to avoid attracting only low-quality staff), the higher cost of staff needs to be reflected in the capacity to charge higher fees, or the field needs to be funded at a level that allows institutions to pay salaries in line with earnings expectations for that field of study.

Governments can use information levers to support institutional staff planning, analysing and publishing data on trends in student choice of fields and distribution of staff by fields of study. In England, the former funding council provided information on trends in academic staff numbers alongside trends in student numbers by subject area, paying particular attention to "strategically important and vulnerable subjects" (HEFCE, 2010[35]).

### *Distribution of staff by academic rank*

In order to contain costs, some systems may pay comparatively low salaries (compared to other professions or other higher education systems) across all staff ranks in the career ladder, from junior to senior categories. Alternatively, they may reduce the ratio of academics in senior categories to those in more junior roles, or place increased reliance on academics holding temporary contracts.

The distribution of staff by rank is highly variable across countries (Finkelstein, Conley and Schuster, 2016[40]) Having a high proportion of more junior, lower-cost staff may reduce costs, but raise questions about institutional capability and the quality of academic work (May, Strachan and Peetz, 2013[41]; TEQSA, 2018[42]).

Governments may legislate to impose a minimum number of staff in senior categories (e.g. in Portugal), in order to balance cost and quality. They may also publish data on the distribution of staff by category. Although many countries do not set policy in this field, quality assurance agencies may also cover this aspect of human resources in their standards.

### *Distribution of staff by age*

The higher education workforce is ageing, and this trend is expected to continue. It reflects, in part, the ageing of the general population in OECD countries, but is also a function of the permanence of staff in employment, and in some cases, the trends in student numbers (Willekens, 2008[43]). In systems where student numbers rose rapidly and subsequently fell (or austerity measures were imposed), hiring was also episodic, with a large and steadily ageing cohort that has not been substantially renewed or replaced.

In the face of ageing academic workforces, some countries have developed initiatives and policies to attract young talent to the profession. These can target funding to facilitate the entry of younger staff to more stable positions (e.g. initiatives such as the New Lecturer Recruitment programme in the United Kingdom in the early 2000s, which provided funding for recruitment, research support, mentoring programmes and lighter teaching loads; and the Canada Research Chairs programme aiming to establish more than 2 000 university research chairs). In some cases, a mandatory age of retirement has been set and measures have been taken designed to make earlier retirement more attractive (Hanover Research Council, 2009[44]; Courty and Sim, 2015[45]). Box 5.4 presents some examples of country policies to address ageing of the academic workforce.

Government agencies and collective bargaining may influence the structure of academic careers, possibly by revising employment contracts and appraisal systems, permitting academics to adjust the balance of responsibilities over the course of their careers; to work on a reduced schedule; or to take appointment as an emeritus professor at the last stage of their career. The focus needs to shift from the age of staff to their human capital (Willekens, 2008[43]), and to the understanding that a balanced aged distribution brings a wide range of talents. Although some believe that creativity is associated with youth, recent research shows

that there are different life cycles of creativity; and some scholars are most creative early in their careers, while others are later on (Weinberg and Galenson, 2019[46]).

### Box 5.4. Policies to address ageing of the academic workforce

**Emeritus status**

In **Spain**, legal reforms have developed the role of emeritus professorship as a way to support staff renewal as well as the maintenance of the value of retired and experienced faculty. The 2007 amendment of the Universities Law broadened the capacity of universities to hire emeritus professors, extending this status to distinguished academics who had not previously held civil servant status (Sánchez, 2016[47]). The number of emeritus professors, though still low, increased after the reform (Veintimilla and Espín, 2014[48]).

**Attracting young academics**

In **Estonia**, the government aims to attract young and talented students to academia and research. In 2015, it implemented the Dora Plus programme, co-financed by the European Union, to support the mobility of national researchers through grants, provide scholarships to international master's and doctoral students, and fund marketing initiatives to increase the visibility of opportunities in Estonia. The programme aims to increase the attractiveness of the country to young professionals (European Migration Network, 2019[49]).

**Information on an ageing workforce**

**Australia** systematically collects information about its higher education system that serves as a framework for informing policies and institutions. As a requirement of the Higher Education Support Act of 2003, every higher education institution provides data about its workforce to the Australian Department of Education to facilitate research (Hugo and Morriss, 2010[50]). The data have been used to provide analysis and policy recommendations regarding the ageing of the academic workforce (Bradley et al., 2008[51]; Hugo and Morriss, 2010[50]).

#### *Gender, diversity and representativeness of staff*

Gender equality is an aspiration in most OECD higher education systems. The proportion of women in academia has been increasing over time, but women tend to be under-represented in senior staff categories and certain fields, and face more precarious employment conditions (Hovdhaugen and Gunnes, 2019[52]; Jarboe, 2017[53]).

Governments have been using several policies to get institutions to promote the representativeness of women where they are under-represented. Gender distribution among academic staff is the most common policy in national strategies on human resources in higher education in Europe (European Commission/EACEA/Eurydice, 2017, p. 26[11]).

Some governments provide targeted funding to increase the number of female professor. In the Flemish Community of Belgium, for example, the government has included the share of women in research positions at all levels among the indicators used for research formula funding, while in Norway, institutions receive additional funding for appointments of female faculty members (OECD, 2019[3])).

Gender is one category often covered by equal opportunities legislation, in addition to others such as ethnicity, disability, religion, age, political beliefs and sexual orientation. In the UK, the research funding councils established an Equality Challenge Unit as a central resource to support higher education

institutions in furthering equality in the sector (HEFCE, 2010[35]). Box 5.5 presents some illustrative policies to address different dimensions of representativeness: ethnicity, gender and language.

### Box 5.5. Policies promoting representativeness of staff

**Ethnic representativeness**

In the **United Kingdom**, the Race Relations (Amendment) Act of 2000 imposed new obligations on all public bodies, including higher education institutions, to promote an increased diversity of staff. It places a duty on universities to keep a record of the ethnic composition of their employees, to implement equality policies and to evaluate the effectiveness of such policies. The results of the evaluation, the data gathered and the policies themselves are publicly released. Evidence suggests that the Act has had a positive impact on the number of minority professors, including in senior posts (HEFCE, 2010[35]).

**Gender representativeness**

**Germany**'s Women Professors Programme (WPP) seeks to increase the number of female staff and to promote gender equality in higher education. Co-financed by the central government and the states, the WPP funds academic positions awarded to women if participating higher education institutions submit gender action plans that are positively evaluated. The programme requires institutions to devote the funds replaced by the WPP external funding to gender equality policies. An evaluation of the programme shows that it has had a significant positive impact on the number of female professors (Löther, 2019[54]).

**Language representativeness**

**Finland** is pursuing a strategy of internationalisation of its higher education system that grants greater autonomy to institutions and allows English as a language of instruction, while simultaneously guaranteeing the rights of the Swedish-speaking minority population. To do so, the Government Decree on Universities 770/2009 requires certain universities listed in the Universities Act of 2009 to demand proficiency in Swedish of their employees. While allowing for institutional reform and adaptation to the global market of education, the reform preserves linguistic diversity in higher education institutions (Ylönen, 2015[55]).

#### *Staff qualifications*

Higher education systems may establish minimum standards concerning the academic and professional qualifications required to enter into or advance in the academic profession, on the premise that formal training – typically to the postgraduate level – yields quality (European Commission/EACEA/Eurydice, 2017[11]). A doctorate, even if not legally required, is often a prerequisite to enter an academic career in OECD countries, especially in the university sector (Huisman, De Weert and Bartelse, 2002[56]). The Netherlands, for example, has set targets for minimum qualifications in public higher education institutions: at least 80% of the academic staff must hold at least a master's degree (OECD, 2019[3]).

Quality assurance agencies may ensure that a minimum proportion of staff holds the necessary academic and professional (e.g. clinical practice, teacher training) qualifications, according to the mission of institutions and programmes.

In systems experiencing rapid massification, some governments have developed training programmes to bring the qualification level of academic staff to minimum levels and have allowed current staff the time and resources to upskill (e.g. funding of doctoral studies of existing or new staff). Some governments may

also make it possible or easier to recruit foreign staff with the required qualifications, especially to address shortages in the short-term.

Equally important, where a government has aimed to establish or refocus sectors of higher education – often with the creation or strengthening of professional education – they have used new standards of training, coupled with public subsidy, to renew (and presumably upskill) the sector's workforce (OECD, 2019[57]).

### *Staff numbers and student-to-staff ratios*

The ratio of students to academic staff is a central characteristic of educational institutions, shaping the structure of their costs, and providing the principal resource with which student learning – along with research and societal engagement – can be supported.

Student-to-staff ratios may be used as a proxy for the quality of teaching and student-instructor interaction in rankings and media reports. As a result, these ratios may influence consumer choice among institutions. Moreover, such ratios are typically monitored by quality assurance agencies as a proxy for quality, and institutions or programmes often have minimum staffing ratios (and qualifications) set by external quality assurance bodies.

Student-to-instructor ratios are a very rough proxy for quality, since they do not reflect the duration, intensity or quality of interaction between students and instructors. Nonetheless, rigorous quasi-experimental studies show that sharp changes in student-to-instructor ratios, all else being equal, lead to substantial changes in learning outcomes. In Italy, for example, a reform that changed the admission requirements for university Science, Technology, Engineering and Maths (STEM) programmes led to a sharp rise in student-to-staff ratios, a reduction in student access to teaching resources, declining grades, and a long-term decline in the formation of human capital – as reflected in declining returns to investment in STEM degrees (Bianchi, 2019[58]).

The digitalisation of learning and teaching has the potential to alter the relationship between student and academic staff numbers, possibly decreasing the need for academic staff and/or by replacing academic staff with other professionals. Thus, the use of student-to-staff ratios by quality assurance agencies as a proxy for quality, or as a policy target by government ministries, poses risks to cost and innovation. Mandating staffing levels may lock higher education institutions into long-standing ways of developing and providing instruction that fail to exploit the potential of digitalisation, and that commit them to cost structures that are difficult to sustain.

## 5.4. Structuring the work and careers of the higher education workforce

The second core task of institutions in the area of human resource management is to structure the workforce and career progression. Institutions need to make decisions regarding the careers of academic, professional and managerial staff (as well as their duties and workload) and reflect on the implications of digitalisation for academic work.

As with the task of mobilising human resources, the task of structuring the workforce in higher education may be carried out by autonomous higher education institutions using private law contracts, or it may be defined in public law or in collective bargaining agreements.

The profile and numbers of staff in higher education result from the recruitment practices of higher education institutions, and also from the way that staff careers are structured. To improve the quality and equity of higher education, career structures need to be sufficiently attractive to appeal to, and retain, talented staff. At the same time, they need to be designed to balance cost and efficiency. In addition, academic career structures need to address adequately the multiple functions and roles that universities

and other types of higher education institutions perform in modern societies. Career structures for academic staff can be common to all institutions in a system, or to sectors within the system, or they can be specific to individual institutions.

As the missions of higher education institutions have become more varied, it is increasingly difficult for academics to perform all roles well: training future professionals; conducting research; engaging in international projects; collaborating with business, public service and the social and cultural sectors; offering pastoral care; and educating future scholars (Coates and Goedegebuure, 2012[5]). Academic roles in many systems are becoming more differentiated and increasingly linked to individuals' capabilities and preferences, with different components of administration, management and leadership, and other activities. Moreover, different institutions with different missions often have different portfolios of academic types, often with individually negotiated employment arrangements.

Insufficient differentiation in roles and career paths within and among higher education institutions may lead to inefficient use of staff skills. Existing labour contracts and collective bargaining agreements may delay the adoption of digital technologies, delaying innovation and possible efficiency gains.

In many higher education systems, there is a high incidence of non-standard employment contracts. They may exist for good reason, for instance to employ professionals whose main employment is outside of higher education, but who bring an important contribution to the education of future professionals. However, in many cases, those employed through non-standard employment contracts have completed doctorates and aspire to, but cannot secure, a permanent academic appointment. Engaging such staff effectively in the academic workforce is a core challenge to higher education institutions; this issue risks diminishing the quality of teaching and learning, the student experience and learning outcomes.

The following sections discuss the factors that shape staff careers and whether they promote or hinder the performance of higher education, and give some examples of interventions governments could adopt to shape institutional practices to address performance problems that may emerge.

### *The employment status of academic staff*

A pressing issue for higher education is the share of standard versus non-standard forms of employment contracts for staff, as institutions seek to balance stability against flexibility in their staffing. Some forms of staff employment status (e.g. civil servant status, tenure) come with strong employment guarantees for the staff concerned and place strict limits of the flexibility of human resource managers in higher education institutions. For this reason, some systems have abolished civil servant status for academic staff (e.g. Austria), or tenure arrangements (e.g. the United Kingdom), and have granted institutions the right to determine the employment and working conditions of their staff. Even in highly regulated systems, with clearly regulated careers, institutions usually have a degree of autonomy in managing some academic staff outside of the regular career structure. In some systems, institutions typically seek to increase the number of externally funded positions, especially in research, which offer fixed-term employment.

These trends reflect wider generic changes in the labour markets of OECD member countries, which have shifted towards greater flexibility and "casualisation" in employment. They have led to a declining proportion of staff in standard forms of employment in many countries' higher education systems. Many staff are not on a clearly defined career path, with the career path reserved for those in intermediate and senior categories of the profession.

Competition in research incentivises universities to hire academics with established research records. This means that the transition from doctoral training to academic career necessitates a period of post-doctoral work in a research-only, fixed-term contract. This "apprenticeship" phase is the most challenging step in the academic career path, given the imbalance between the number of new doctorate holders and the number of available post-doctoral positions in many systems (Fumasoli, Goastellec and Kehm, 2015[59]).

In some higher education systems, academic careers have evolved towards the coexistence of a protected elite professoriate with a precarious academic "proletariat" (Teixeira, 2017[60]). Academics with external research grants seek to focus their time on research by "buying out" their teaching time. This reduces the number of permanent academic staff available for teaching, increases the share of instruction assigned to casual, mainly teaching-only positions, (Laudel and Gläser, 2007[61]), and allows institutions to pay higher salaries to their full-time permanent staff, who are mostly rewarded for research performance. The growing use of part-time academics at research-intensive institutions, holding constant the use of full-time academics, has been shown to be associated with increased external research expenditure at an institution, while using casual staff to reduce the teaching loads of full-time academics allows them to generate more external research funding (Zhang and Ehrenberg, 2010[62]).

In countries such as Germany, Estonia, Austria and Finland, fewer than one-third of academics have a permanent employment contract (European Commission/EACEA/Eurydice, 2017[11]). In the United States, contingent academic staff are also now in the majority of all academic staff at colleges and universities, representing almost three-quarters of the teaching staff at non-profit higher education institutions (Gyurko et al., 2016[63]), compared to around one-fifth of the teaching staff four decades ago (Kezar and Maxey, 2013[64]). Many systems have some form of tenure-track positions, but there is intense competition for those positions in most countries, and many people remain in temporary contracts. While it is true that some institutions and systems rated as high-performing in bibliometric measures have high levels of casualisation, there are risks and trade-offs from this trend.

Extensive casualisation of staff - and the deterioration of working conditions for some - may have detrimental effects on attracting and retaining talent, and on the motivation and performance of staff (Klopper and Power, 2014[65]). A study of researchers with fixed-term contracts in Finland shows that the stress caused by job insecurity and the job dissatisfaction caused by poor career prospects and salaries are driving some away from academia (Aarnikoivu et al., 2019[66]). Casualisation that results in precarious employment may also hinder academic freedom, with harmful consequences for the quality of higher education (Karran, Beiter and Appiagyei-Atua, 2017[67]).

Most importantly, casualisation of academic work may have an adverse effect on students. There is evidence from the United States that institutions with a higher concentration of non-permanent (contingent) academics, particularly working part-time, are those where students at risk of non-completion (such as part-time and low-income students) are most likely to study (Hurlburt and McGarrah, 2016[68]).

On balance, research suggests that the increased use of temporary part-time academics has some negative consequences for the quality of teaching and learning (Baldwin and Wawrzynski, 2011[69]). The effects are complex and heterogeneous across institutions, student types and study levels, but research has shown that, in US universities, students taught by part-time instructors are less likely to take subsequent classes in a subject (Bettinger and Long, 2004[70]); less likely to complete their studies (Ehrenberg and Zhang, 2005[71]); and, in one institution (where a randomised design was used), students of less experienced instructors who did not possess a doctorate performed worse in follow-on related curriculum (Carrell and West, 2010[72]). Jaeger and Eagan (2011[73]) also found that high levels of exposure to part-time faculty in the first year of college are consistently found to affect negatively student retention to the second year.

The impact of temporary and part-time instructors on learning varies by programme and institution type. In occupationally oriented programmes adjunct instructors may have a small, positive effect on continued enrolment in a study programme (Bettinger and Long, 2010[74]). In research-led universities the intensive research commitments of permanent staff may result in weak investments in undergraduate teaching. In one elite research-intensive university, it was found that undergraduate students learned more from non-tenured faculty than tenured professors in their first-term courses. The differences were present across a

wide variety of subjects and were particularly pronounced for average and less-qualified students (Figlio, Schapiro and Soter, 2015[75]).

In some higher education systems, the expansion of non-standard employment is constrained by quality assurance agencies, which may set limits on the ratio of indefinite to fixed-term contracts (TEQSA, 2018[42]). In many countries, collective bargaining between governments, employers and unions allows for the negotiation of terms and conditions of employment, such as employment relationships, professional rights, wages, equality, hours of work and workload. In these systems, collective bargaining and social dialogue arrangements are another way of steering the behaviour of institutions in the use of non-standard employment (ILO, 2018[76]).

Some countries are discussing or undertaking reforms to their academic career structure to enable more predictable careers. An example is Germany, which has traditionally had a high share of staff in non-standard contracts (Kehm, 2019[77]). In Ireland, a 2016 government-commissioned report produced a set of recommendations, including establishing a two-year qualification period for the granting of contracts with indefinite duration, and requiring the employer to give preference to staff with existing contracts in recruitment for posts with indefinite contracts (ILO, 2018[76]). Some countries have regulations limiting the share of staff on non-standard contracts (e.g. Italy, Netherlands, Austria and Portugal) (European Commission/EACEA/Eurydice, 2017, p. 26[11]). In Estonia, fixed-term contracts can only be used if a position cannot be filled with a permanent employee; temporary employment with the same employer cannot last longer than five consecutive years, then it must end or be followed by an ongoing contract (OECD, 2019[3]). In France, fixed-term contracts, either full or part-time, cannot exceed four years (European Commission/ EACEA/ Eurydice, 2018[78]).

In the United Kingdom, a higher education workforce survey, conducted by the Universities and Colleges Employers Association (UCEA), showed that the sector's employment of casual staff has been falling, with strong growth in open-ended and full-time employment (UCEA, 2017[79]). However, there has been significantly more growth in research-only and teaching-only positions, as opposed to traditional positions that combine teaching and research (UCEA, 2018[80]). Academics with responsibilities for both teaching and research have been in the minority in the United Kingdom since 2014 (Frølich et al., 2018[4]).Box 5.6 presents some examples of countries' policies addressing the casualisation of the academic workforce.

### Box 5.6. Policies addressing the casualisation of the academic workforce

**Addressing the impact of casualisation on academic freedom**

In **Denmark**, the government is addressing some of the effects of the casualisation of higher education staff on academic freedom. As a response to International Labour Organization/United Nations Educational, Scientific and Cultural Organization (ILO/UNESCO) recommendations (ILO-UNESCO, 2016[81]), criticism from trade unions and advice from international experts, Denmark reformed its Universities Act in 2011 (Karran and Mallinson, 2017[82]). The changes included an explicit commitment to protect individual and institutional academic freedom. The reform may serve to protect the academic freedom of higher education staff, especially for those who hold non-standard forms of employment.

**Regulating the duration of fixed-term contracts**

**Germany** is responding to its historically high rates of non-standard contracts of academic staff. After critical evaluations of its Law on Fixed-Term Contracts in Higher Education and Research (Jongmanns, 2011[83]), the legislation was amended in 2016 to increase the length of contractual periods of higher education staff. Since the reform, fixed-term contracts must last at least the time required to develop the skills that young scientists are expected to acquire (e.g. the time needed to write a doctoral thesis),

and positions funded by third parties must be awarded through contracts whose minimum duration is that of the project being performed. Although no evidence of its impact is yet available, the reform is likely to reduce the labour precariousness of young academic staff in Germany (Hüther and Krücken, 2018[84]).

**Promoting tenure-track schemes**

**Austria**'s Research, Technology and Innovation Strategy 2011-2020 viewed tenure-track schemes as a means of increasing the attractiveness of its higher education system to talented individuals. This project led to an amendment of the University Act in 2015 to allow higher education institutions to establish tenure tracks that can lead to permanent academic positions. Since the reform, young academics work less often for long periods under fixed-term contracts, and achieve career stability sooner through a simplified procedure. A number of universities have implemented the tenure-track model, likely improving the capacity of Austria to attract highly skilled staff (OECD, 2018[85]).

## *Academic roles and workload policies*

### *Specialisation of roles*

In traditional research universities, with traditionally structured roles, each academic carries out both teaching and research responsibilities. While there is evidence of synergies between postgraduate teaching and academic research (Palali et al., 2018[86]), studies increasingly point to trade-offs between teaching and research (Fox, 1992[87]; Christensen et al., 2011[88]), and find no association between research productivity and teaching effectiveness (Hattie and Marsh, 1996[89]; Marsh and Hattie, 2002[90]). Instead, evidence points to important increases in research productivity that can be achieved with greater differentiation in roles (Jonker and Hicks, 2014[91]).

In many research universities, there has been an increasing differentiation or disaggregation of roles, often between full-time, research-active staff with continuing appointments and modest teaching responsibilities, and those on fixed-term, often part-time, appointments with mainly (or exclusively) teaching duties.

Outside of research-intensive universities, such as in universities of applied sciences, polytechnics or colleges of higher education, the roles of academic staff may be weighted almost exclusively to teaching and engagement missions. In these sectors of higher education, part-time teaching may be prevalent, as part-time staff have outside jobs, and their professional experience contributes to the effectiveness of their teaching in occupationally oriented programmes.

### *How academics allocate their time*

Some European higher education systems have regulatory frameworks that define the duties and working time of academics, including in different categories of the career, and in different sub-sectors of higher education, reflecting different missions (European Commission/EACEA/Eurydice, 2017[11]). There is some evidence that patterns of academic staff time allocation have been favouring research, including in the non-university sector (Milem, Berger and Dey, 2000[92]; Teichler, Arimoto and Cummings, 2013[93]). This is consistent with evidence about the quantity of research output, which has grown sharply in the past decades in many higher education systems.

The allocation of time to different roles changes as academics progress through their career. A study in the United States shows that tenure and promotion influence the allocation of time: full professors spend more time on service activities (relative to teaching and research) and longer-term associate professors spend more time teaching than doing research (Link, Swann and Bozeman, 2008[94]). Women, on average,

allocate more time to service (engagement) and less time to research; this may be a contributing factor in the gender gap observed in salaries. In the United Kingdom, a study on the evolution of academic workloads since 1945, shows evidence that the biggest change has been the growing amount of time academics devote to administrative activities.

To counterbalance a focus on research performance that risks diminishing investment in teaching, some countries have been introducing targeted funding for teaching excellence, while others have funding initiatives, such as matching funds, to reward staff for the development of engagement initiatives. Conversely, some governments have supported occupationally focused institutions to widen opportunities for staff to engage in research or engagement activities, as in Portugal's Polytechnic Modernisation Programme (OECD, 2019[57]), and in the universities of applied sciences in the Netherlands (Frølich et al., 2018[4]).

Elsewhere, higher education institutions or systems – such as the University of California (UC) System – are experimenting with new academic roles, such as the tenure-track teaching positions created for the "teaching faculty series". These positions are designed to meet the long-term instructional needs of a university. Their primary responsibility is teaching, and their secondary responsibility is to engage in research. As part of the tenure system, they also participate in institutional governance, with voting rights on departmental decisions; they are eligible for appointment to Senate committees; and they are evaluated for promotion in the same manner as research faculty in the UC system.

### *Digitalisation in learning and teaching*

Digitalisation holds the promise of improved efficiency in learning and teaching by reducing the marginal cost of additional enrolments (Christensen et al., 2011[88]). It has the potential to promote the quality of the learning experience and outcomes through the use of learning analytics, customisation and adaptation (Colvin, 2016[95]). Digitalisation can also widen access to higher education through increasing the diversity of the student population. Digital approaches have particular potential for continuing professional development and lifelong learning (European Commission, 2014[96]). At the same time, digitalisation creates the potential for reorganisation of traditional academic roles and responsibilities (ACE, 2014[97]). Digitalisation can facilitate the unbundling of roles – course development, teaching, assessment, and advising – that have rested in the hands of solitary academic staff. It can create new positions for other professionals in academia, and more "hybrid", "third space" careers (Whitchurch, 2008[98]; White and White, 2016[99]).

In practice, however, the impact of the use of digital technology in learning and teaching on cost, quality and academic work has been mixed (Lillejord et al., 2018[100]; Natow, Reddy and Grant, 2017[101]). Introducing new technology does not necessarily lead to innovative and more effective practices, or reductions in marginal cost. Staff may adapt new technologies to traditional practice, or they may resist its implementation. Even eager and able adopters may be deterred by career structures and assessment systems that prevent them from making full use of its potential.

Hitherto, the changing digital education environment appears to have been technology-driven and has had limited capacity to harness technology for academic goals. Technologists, rather than educators, have tended to design the approaches used, which has impacted on pedagogical quality, especially in terms of supporting collaborative learning and learning analytics. Many academics are not well prepared to drive digitally-supported learning and teaching alongside technologists (Laurillard, 2016[102]; 2015[103]).

A review of experimental evidence on the effectiveness of technology-based approaches in education shows that effectiveness varies by how provision is organised and by the types of students it serves. Two promising, cost-effective approaches are: computer-assisted learning and behavioural interventions (nudging); and the combination of blended, online and in-person learning (Escueta et al., 2017[104]). Many current online courses may be difficult for the students who are least prepared – precisely those students

for whom online provision could extend educational opportunities the most; and they might be better off taking equivalent in-person courses (Bettinger and Loeb, 2017[105]).

Governments in several countries promote digitalisation in higher education, recognising its potential and also the challenges to its effective implementation (see Box 5.7); many are offering targeted funding for digitalisation initiatives, including the development of the digital skills of staff (European Commission/ EACEA/ Eurydice, 2018, p. 75[106]). Quality assurance agencies are adjusting their review standards to the digitalisation of learning and teaching, recognising that requirements regarding student-to-staff ratios and staff profiles may need to change (OECD, 2019[107]). However, there is a concern that the uptake of technology in teaching, learning and innovation in pedagogy is still insufficient, and that design and delivery is still traditional in most countries. Experts recommend that governments examine to what extent their higher education strategies, regulation, funding, accreditation, quality assurance, assessment and certification frameworks support new modes of learning (European Commission, 2015[108]); and create favourable framework conditions to make the most of digital education opportunities in higher education (Henderikx and Jansen, 2018[109]).

Guidelines and criteria for new modes of teaching and learning using technology have not yet been adopted by quality assurance systems; blended and online learning are often assessed against the same criteria as face-to-face education. One promising recent development has been the revision of the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) (ENQA, 2015[12]), which are now more open to innovation in the use of technology in teaching. One barrier is that quality assurance agencies are almost entirely focused on degree provision, whereas the expansion of digital education may be more promising in continuous professional development and lifelong learning.

### Box 5.7. Policies promoting digitalisation in higher education

#### Distance education to widen access

In **Spain**, the Catalan regional government created a specific public higher education institution in 1995 that is obligated by law to provide distance education using new technologies. This institution, the *Universitat Oberta de Catalunya* (UOC), has a legal mandate to employ information and communications technology (ICT) to facilitate access to education to individuals for whom in-person learning is difficult due to personal, geographical or work reasons. Research shows that UOC's internet-based teaching system has been able to disproportionally attract adult students engaged in work, with children and with prior educational experience (Sangrà, 2002[110]), showing that it may be an effective tool to meet the demands of lifelong learners who may find face-to-face education unobtainable in their circumstances.

#### Digitalisation for improving learning and teaching

**Denmark** is pursuing a strategy of digitalisation that, among other elements, aims to improve the quality of teaching and learning outcomes in higher education. Since 2015, the Danish government has included an increase in the use of new technologies as one of the performance goals in the three-year development contracts that it signs with universities. International comparisons indicate that these contracts have prompted Danish universities to record high levels of use of digital tools. Despite the uncertainty about the impact of this strategy on education outcomes, cross-country comparisons show that Danish students experience ICT-supported teaching and learning, such as virtual teaching or incorporation of videos and social media, on a more frequent basis because of this policy (Tømte et al., 2019[111]).

**Digitalisation to counter territorial inequality**

**Brazil**'s 2000-2010 National Education Plan included distance education as one of the means of addressing educational inequality within the country. In 2005, this policy led to the creation of the *Universidade Aberta do Brasil* (UAB), a higher education network that combines online teaching, periodical face-to-face tutoring and de-centralised centres of education; which was developed in collaboration between the Ministry of Education, universities, states and municipalities (Duran and Costa, 2016[112]). The UAB structure was designed taking into account, among other factors, population dispersion and mobility hardships within the Brazilian territory that could be overcome by using ICT (Costa and Pimentel, 2010[113]). Data show that UAB has reduced regional and socio-economic inequities in tertiary education (Borges, 2015[114]) and that students report positive learning experiences with e-learning (Cidral et al., 2018[115]).

## 5.5. Encouraging good performance in the higher education workforce

The third core task of institutions in the area of human resource management is to encourage good performance from the higher education workforce. Institutions need to make decisions regarding staff appraisal, promotion, remuneration, professional development, mobility and retirement to encourage high performance and make the fullest use of staff capabilities.

As with the other core tasks of mobilising human resources and structuring their careers, supporting staff to perform to the best of their abilities may be undertaken by higher education institutions acting with full autonomy, or it may be the subject of public law, collective bargaining agreements or targeted funding that nudges institutions into action (see an example of the latter in Box 5.8).

### Box 5.8. Improving human resource management to promote performance

**Rewarding and developing staff in higher education in the UK**

In the early 2000s, the UK government provided additional resources for rewarding, retaining and developing staff in higher education. The former Higher Education Funding Council for England used these resources in an initiative to improve human resource management practices in an attempt to raise the level of performance in the higher education sector (HEFCE, 2000[116]). An evaluation of the programme observed the evolution of human resource management from a transactional approach focused on administration to a transformational approach focusing more on strategy and change within the sector. There was also evidence that the initiative produced fundamental change in human resource practices with positive impacts (Deloitte & Touche, 2002[117]).

In the following sections, we discuss the factors that shape staff performance, and give some examples of how governments and other steering actors shape institutional practices to try and induce better performance from higher education institutions.

### *Staff appraisal*

Staff appraisal systems are meant to promote good performance from staff and inform professional development. However, in some systems, there are no robust systems of staff appraisal and the link between performance, promotion and remuneration is not strong. In many systems, regular staff appraisal procedures have often been limited to summative peer assessment at recruitment, at the award of tenure, and at promotion to a higher category in the profession (e.g. *habilitation* in some European systems).

Regular staff appraisal with more formative purposes, such as peer feedback and team teaching, and linked to professional development, seems to be under-developed compared to other professions. Many systems only evaluate the research performance of staff, which can have negative effects on the quality of the education provided, and the incentives to participate in engagement activities. Countries are developing different policies to address the bias toward research performance and to promote teaching performance (Box 5.9).

The most common means of teaching assessment is student feedback surveys (European Commission/ EACEA/ Eurydice, 2018, p. 88[106]). However, commonly used instruments to evaluate the teaching performance of teachers can be flawed. It has been shown that teacher quality affects student achievement, but that measures of teacher effectiveness are negatively correlated with students' evaluation of professors (Braga, Paccagnella and Pellizzari, 2014[118]). There is also evidence of gender bias in both teaching and research evaluation (Mengel, Sauermann and Zölitz, 2019[119]; Hengel, 2017[120]). The European University Association has recently developed some reflections and recommendations on how to improve the evaluation of learning and teaching (Dewhirst and Anna, 2019[121]).

### Box 5.9. Policies promoting teaching performance

**Teaching Excellence and Student Outcomes Framework**

In 2017, the **United Kingdom** introduced the Teaching Excellence and Student Outcomes Framework (TEF) to create indicators of teaching performance and to complement the Research Excellence Framework (REF). TEF covers three aspects: teaching quality, learning environment and student outcomes, and learning gain. It classifies universities into three groups according to the value judgements of a panel of experts who use different data sources (Gunn, 2018[122]). The TEF has sparked intense criticism about its validity as a measure of teaching quality (Gibbs, 2017[123]; Rust, 2017[124]), though experience suggests that it may increase institutional efforts to improve teaching quality (Bothwell, 2017[125]).

**National Forum for the Enhancement of Teaching and Learning in Higher Education**

The Higher Education Authority (HEA) in **Ireland** has implemented different programmes aimed at improving teaching quality in higher education as a part of the National Strategy for Higher Education to 2030. Through the National Forum for the Enhancement of Teaching and Learning in Higher Education, the HEA has funded, among other initiatives, institution-level projects designed to improve teaching through the Learning Impact Awards, and has rewarded professors with outstanding teaching records through the Teaching Experts Awards. Although systematic reviews have not yet been performed, preliminary evidence suggests that the National Forum potentially leads to positive results in teaching quality (Henard, 2017[126]).

**Performance agreements: dropout rates and completion rates**

The **Netherlands** introduced performance agreements in 2012 through which the government and each higher education institution agreed upon certain goals that influence the funding the institution receives. Two elements related to teaching quality and student learning were used as criteria for the performance agreements: dropout rates and completion rates. As a consequence of these agreements, institutions that reduce dropout rates and increase completion rates received higher state funding. Evidence shows that, at least in research-oriented universities, this initiative improved student completion and retention, although the effect of performance agreements on teaching quality itself is uncertain (Jongbloed et al., 2018[127]).

A combination of sources of evidence, such as student input, peer review, student achievement and self-assessment, can overcome the weaknesses of each source and enhance their strengths, and may be the best way to demonstrate teaching effectiveness (Chalmers and Hunt, 2016[128]). A recent review of assessing teaching in higher education by a joint ILO-UNESCO body formulated a number of policy recommendations regarding the development of consistent standards of effective teaching and quality assessment practices, staff training and professional development (Jarrell, 2019[129]).

Many countries have regulatory frameworks for staff appraisal. The introduction of performance-based funding for institutions can also have an effect on staff appraisal schemes by reflecting system-wide objectives. Quality assurance frameworks often include standards on staff appraisal and dismissal procedures for under-performing staff, which is the case for 26 jurisdictions in Europe (European Commission/EACEA/Eurydice, 2017[11]). Over half of the 28 European systems surveyed have a national teaching prize, but they weigh much less and have lower visibility and impact than research awards (Bunescu and Gaebel, 2018[130])

Having well-designed staff appraisal frameworks will ensure that the performance of staff is aligned to the mission of the institution (including the weight assigned to different work duties), and ensure that staff have a further incentive to perform.

### *Promotion*

Career advancement in higher education follows two basic models: promotion or competition, with some systems having a hybrid model. In a competition model, promotion is dependent on a position becoming available, and those seeking advancement in the career applying for vacant positions in an institutional or national competition. In the promotion model, those who meet specified criteria of teaching, research and other activities can be promoted to the next category in the career based on an evaluation of their performance. This is the model in systems having tenure tracks.

Some countries have regulatory frameworks governing public higher education institutions that define performance criteria for promotion and that link promotion to performance appraisal. A well-documented issue with promotion in higher education is the emphasis put on research performance relative to teaching (European Commission/ EACEA/ Eurydice, 2018, p. 89[106]). Some countries, like the Netherlands, are devising policies to give more recognition to the educational role of academic staff (Dutch Ministry of Education, 2015[131]; VSNU et al., 2019[132]).

Some countries have granted more autonomy to institutions for financial and human resourcing, which institutions may use to promote staff on the basis of merit. Promotion, along with other aspects of human resource management, can be subject to external quality assurance systems, which is the case for 26 European jurisdictions (European Commission/EACEA/Eurydice, 2017[11]). For instance, in the United Kingdom, the Quality Assurance Agency has a code for institutions that indicates they should act transparently in all their activities, including promotion.

The relative under-representation of women in senior academic ranks raises questions about whether promotion processes in higher education are equitable. Research in New Zealand found that men have had a greater probability of being promoted than women, even when controlling for assessed research performance, field of study, age and other observable factors (Brower and James, 2020[133]). This suggests a level of bias, albeit probably unconscious, in the promotions processes of New Zealand's universities. Similar disparities in the ranks of men and women in many other OECD jurisdictions raise the question of whether this bias occurs in other countries also.

## *Remuneration*

### *Differences between and within countries*

A comparative study of academic remuneration and benefits at public universities in 28 countries investigated whether the academic profession remains attractive enough to attract and retain talent (Altbach et al., 2012[134]). The analysis finds significant differences in remuneration worldwide when adjusted for purchasing power parity. In addition to disparities between countries, there are differences within countries, with some institutions being able to offer better remuneration packages to their staff. There are also differences between types of institutions (with research universities typically paying higher salaries), and between the academic profession and comparable professions outside of academia.

Performance-based rewards are becoming more common. In some countries, remuneration frameworks may steer the behaviour of higher education institutions in this area. In France and Portugal, every academic, independently of their institution or discipline, is paid according to a single national salary grid. In Australia, universities set their own base rate for staff in negotiation with staff associations, although government funding as a share of total funding influences the negotiations. In the United Kingdom, base rates are agreed by a national committee of the employers' body and representation from the main trade unions (ACU, 2008[135]). Performance-based allowances, bonuses or salaries are also common in some countries (e.g. the Netherlands and Finland, (Eurydice, 2018[136]; The Finnish Union of University Researchers and Teachers, 2016[137])).

In other systems, such as Mexico or the United States, remuneration is set by all private and many public higher education institutions within a market-like environment. There is a high level of heterogeneity between staff categories and within the same category; differences among disciplines and institutions can be significant (Curtis and Kisielewski, 2016[138]).

Institutions adjust to cost pressures in some fields by increasing class size and increasing teaching from less expensive casual staff. The highest paid academics teach fewer undergraduates and fewer undergraduate courses than their lower paid colleagues (Courant and Turner, 2017[139]).

In many countries, remuneration levels of academics are not keeping pace with similarly educated workers in the workforce in general, and there is evidence of wage compression in some disciplines such as accounting, economics and finance, as competing non-academic salaries increase. These disciplines may experience decreased morale and increased turnover as experienced staff look for better paid jobs elsewhere (McDonald and Sorensen, 2017[140]).

### *Policy responses*

Poorly designed remuneration structures will not attract and retain the best in the profession and will not promote the best performance from those already in the profession. The current two-tier labour markets, with an expansion of the share of those in non-standard contracts with low wages, will discourage many, who will therefore transition to employment outside academia (in all likelihood the most talented).

Insufficient remuneration makes additional employment important for academics in some countries, either within the same institution (e.g. continuing education, executive education, summer schools), at another institution, or in non-academic employment. Compounded with low morale, additional employment for academics may lead to poor teaching and less engagement with research and other activities.

On the other hand, well-designed remuneration structures can contribute to the capacity of higher education institutions to recruit and motivate highly skilled teachers and researchers.

### *Professional development*

The calibre of higher education teachers is the most important factor for student learning, and training in teaching skills is important for a well-performing system. Research shows that students learn better from improved teaching, and that co-ordinated professional development of academics improves student outcomes, including retention and graduation rates, as well as leading to greater faculty satisfaction, engagement and sense of belonging (Condon et al., 2016[141]). However, to the detriment of student learning, many academics receive little teaching development support. Despite evidence to the contrary, the sector still hangs on to the idea that being an expert in a discipline makes one an effective teacher in the area.

Traditional lecture-based practices are still pervasive despite research findings that this approach is ill-adapted to how students learn. There is evidence that staff development is often not systematic in higher education, and that teaching development often consists of learning on the job (European Commission/ EACEA/ Eurydice, 2018, p. 87[106]), with some exceptions (see Box 5.10 for examples). The situation tends to be worse for casual staff, who tend to have less access to professional development, despite the fact that they are responsible for an increasing proportion of the teaching load in many systems. They are more likely to use evidence-based teaching practices that produce positive student outcomes, if provided with professional development opportunities (Eagan et al., 2014[142]).

#### Box 5.10. Policies promoting professional development of staff

**Initial teacher training and continuing professional development**

**Sweden** is committed to improving teaching quality through continuing professional development. In particular, the Swedish Higher Education Ordinance of 2002 makes the granting of permanent academic positions conditional on the completion of teacher training (Lindberg-Sand and Sonesson, 2008[143]). Although the Swedish government funds the programmes for professional development, universities have the autonomy to set the conditions and forms of training. Research shows that this pedagogical training has positive effects on professors' self-evaluation of teaching skills and their confidence (Ödalen et al., 2018[144]).

**Professional development to improve teaching quality**

**France** has implemented programmes of continuing professional development for academic staff as a means of improving teaching quality. In 2014, the Bertrand report highlighted the need to adjust teaching methods for a more diverse student population and to the new degree structure developed through the Bologna process (Bertrand, 2014[145]). As a response, the French government created the Mission for Pedagogy and Digitalisation in Higher Education programme in 2015. This programme organises conferences on new pedagogical initiatives for academics and funds proposals for innovative teaching practices, especially those that involve information and communications technology (Bunescu and Gaebel, 2018[130]).

**Mandatory periodic training**

Since 2014, **Latvia** has required university professors to engage in a minimum of 160 hours of teacher training to retain their positions. This mandatory training includes mobility programmes and attending conferences and seminars that are likely to improve professors' skills (Bunescu and Gaebel, 2018[130]).

However, the importance of staff development is increasingly being recognised and monitored in quality assurance. In Europe, the European Standards and Guidelines require that each institution "offers

opportunities for, and promotes, the professional development of teaching staff" (ENQA, 2015[12]). In the United States, the American Council on Education, made effective teaching a priority, recommended that higher education institutions invest in professional development, and endorsed the online Course in Effective Teaching Practices developed by the Association of College and University Educators (Gyurko et al., 2016[63]).

### *Initial preparation*

A doctoral degree is still commonly required training to enter the academic profession in many higher education systems; and in most jurisdictions in the OECD. Typically, a master's degree is the minimum (European Commission/EACEA/Eurydice, 2017[11]; AFT, 2019[146]).

Many teachers begin teaching in higher education without formal training in teaching skills. Comprehensive professional development targeting the teaching skills of academic staff is not common in many systems (European Commission/EACEA/Eurydice, 2017[11]). The process of massification has increased focus on the attrition and progression of students and more emphasis on student learning and teaching quality (Gillard, 2008[147]). Many jurisdictions have broadened initial training to encompass doctoral and teaching training.

Universities in the Netherlands introduced a University Teaching Qualification (UTQ) in the mid-2000s. The government incentivised obtaining this qualification and by 2016, the majority of lecturers had obtained the qualification (de Groot and Kouwenaar, 2018[148]). In Norway, newly appointed university teachers need to prove pedagogical skills.

### *Continuing professional development*

Staff professional development – particularly through the sabbatical system – has traditionally focused on research skills. Increasing attention is now being paid to development related to learning and teaching in higher education.

Teaching enhancement (formal pedagogical staff development or training provided to teachers) is a legal requirement in Denmark, France, Latvia, Lithuania, the Netherlands and Norway, while many other countries (Finland, Ireland, Sweden, the United Kingdom) have system-wide frameworks for professional development in teaching (Bunescu and Gaebel, 2018[130]). EU project funding supports co-operation on learning and teaching enhancement through training courses, learning and teaching centres, summer academies, international exchanges and compendia of good practices (Bunescu and Gaebel, 2018[130]).

Quality of teaching staff is an essential dimension of most external quality assurance frameworks, with some requiring evidence of provision of training in teaching for academic staff. (TEQSA, 2017[21])

One important priority for professional development is to improve and increase the use of technology in teaching. A study in the Netherlands showed substantially increased technological pedagogical knowledge among academics after completing an online teacher training programme to develop those skills. It also led to lowered belief in the merits of traditional knowledge transmission (Rienties, Brouwer and Lygo-Baker, 2013[149]).

Reviews of the impact of teaching development programmes in higher education found evidence of impact on teachers' attitudes, knowledge and skills; teachers' behaviour and practice; and the student learning experience; although most studies cannot establish causality or calculate the net effect of development programmes due to a lack of baseline measures (Parsons et al., 2012[150]; Stes et al., 2010[151]).

One major obstacle to participation in teaching training is the low value granted to it in recruitment and promotion criteria. According to a survey of experts in 28 European countries, teaching enhancement does not count for promotion in 20 higher education systems (Bunescu and Gaebel, 2018[130]).

#### *Leadership development*

The role of the higher education leader has shifted from academic leadership to a role that combines academic leadership with the responsibilities of leading large, complex, entrepreneurial and multi-stakeholder organisations. Institutional leaders need professional management skills and experience. These new responsibilities make it harder to recruit staff with the necessary requisites (Turpin, De Decker and Boyd, 2014[152]).

There are examples of leadership development programmes for higher education; for instance, Advance HE in the United Kingdom aims to provide support and advice on leadership, governance and management for all higher education institutions (AdvanceHE, 2019[153]).

### *Mobility*

#### *Domestic mobility*

Mobility between higher education institutions counters inbreeding, and avoids the entrenching of a culture of unfair power dynamics and hierarchical relationships (Altbach, Yudkevich and Rumbley, 2015[9]). More importantly, quality and productivity of research are also enhanced by mobility (Inanc and Tuncer, 2011[154]; Horta, 2013[155]). For these reasons, some governments provide funding for staff exchange programmes and collaboration schemes in research, education and engagement.

Mobility between higher education and other sectors of economic activity in government, industry and the social sector has the potential to bring new ideas and innovation to those sectors. It can also facilitate joint research projects, with staff from outside bringing new sets of skills and social capital to higher education, including to the classroom, improving the student learning.

In Europe, system-wide “knowledge triangle” policies to promote interaction between research, education and innovation, and support a knowledge-based society, have been encouraged by governments and the European Commission.

Some countries support higher education staff placements in organisations outside higher education, and placements of outside staff in higher education. In the United States, the American Association for the Advancement of Science runs a programme that places scientists and engineers working in academia, non-profits and industry temporarily in various federal agencies (AAAS, 2019[156]). In Canada, an initiative provides Science Policy Fellowships to academic researchers so they can spend a year in federal departments to enhance collaboration between science and policy development (Mitacs, 2019[157]). In Australia, secondments have been used to increase knowledge exchange between academics and policy makers in health (O’Donoughue Jenkins and Anstey, 2017[158]).

Countries also put in place system-wide regulations that guarantee portability of acquired benefits, and the right to return to their original position for those who take part in outside placements (e.g. Portugal).

These policy interventions allow higher education institutions to reward the temporary placement of their staff in organisations outside of higher education. This is especially important for staff involved in programmes with a high volume of work-based learning, applied research, and professional knowledge. Some examples include combined professorial positions between higher education and industry (e.g. in Norway and France (Deloitte, 2012[159]; Vandevelde, 2014[160])), and recognition of sectoral mobility in the appraisal process, as well as industrial sabbaticals, secondments, and part-time professorships (European Commission, 2006[161]; Vandevelde, 2014[160]).

These types of initiatives are also promoted by quality assurance standards requiring occupationally specific expertise in some fields of study for the accreditation of some degree programmes.

### *International mobility*

Countries engage in a number of policy initiatives to promote the international mobility of staff (Helms et al., 2015[162]). A number of governments provide funding for visiting academics to spend time in the host country for professional purposes (e.g. Centre for International Mobility Scholarships in Finland, British Council grants in the United Kingdom, and the Fulbright Visiting Scholar Programme in the United States).

Conversely, there are also programmes and grants to send academics abroad for temporary stays (e.g. Top 500 Innovators programme in Poland, Fulbright Scholar Program in the United States, and *Consejo Nacional de Ciencia y Tecnología* (CONACyT) scholarships in Mexico). There are also project-based research grants for international teams, such as those funded by the European Union, the National Science Foundation in the United States (Partnerships for International Research and Education (PIRE) programme), and an international co-operation programme in Brazil managed by CAPES (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior*). Some countries also have policies to repatriate their diaspora academics living in other countries (e.g. RAÍCES programme in Argentina, 100 Scholar Programme in China, and the Alon Programme in Israel). The European Union also funds staff training mobility via the Erasmus+ programme, including job shadowing, attendance at seminars, workshops, courses, practical training and study visits.

At the European level, documents such as "European higher education in the world" encourage member states to develop comprehensive internationalisation strategies (European Commission, 2013[163]). Some countries (like Lithuania, Finland and Slovenia) set mobility targets (Racké, Forsthuber and Crosier, 2013, p. 3[164]). Others have policies on staff mobility, but without targets (e.g. Germany and Norway); and others have internationalisation initiatives, of which staff mobility is a part (e.g. Estonia and France (Racké, Forsthuber and Crosier, 2013[164])) (European Commission/ EACEA/ Eurydice, 2018, p. 16[106]). Box 5.11 presents some illustrative policies to promote staff mobility.

International collaboration is associated with higher levels of research productivity and impact (Lawson et al., 2019[165]). International academic mobility also increases the supply of human capital in the receiving country, stabilising the cost of academic staff in fields where there is a shortage of academic staff. Universities in the United Kingdom commonly recruit internationally and almost one-third of the UK academic workforce comes from outside the United Kingdom (UCEA, 2017[79]).

International mobility of higher education staff is often linked to increased patterns of collaboration across institutions (Racké, Forsthuber and Crosier, 2013[164]).

#### Box 5.11. Policies promoting staff mobility

**Promoting geographic, between-sectors and interdisciplinary mobility**

In 2011, **Spain** implemented the Science, Technology and Innovation Act that declares geographic, between-sectors and interdisciplinary mobility as a right of researchers and academic staff. It also requires universities and research centres to actively promote the mobility of their personnel and it obliges them to include mobility as one of the criteria for selection and promotion of staff. In addition, it establishes special forms of leave that allow professors to work temporarily in external institutions and companies for research and engagement purposes, with the right to return to their original position with no loss of benefits (Pérez, 2015[166]).

**Promoting international mobility**

**Sweden** implemented the Knowledge without Borders – Higher Education in the Era of Globalisation law in 2008 as a means of increasing the internationalisation of higher education. The legislation

required universities to promote staff mobility and the Swedish government has provided almost EUR 2 million funding annually since its implementation. Originally, the Swedish government also financed substitute teachers taking the place of staff on mobility (Racké, Forsthuber and Crosier, 2013[164]).

**Estonia** has encouraged short-term international mobility for its young lecturers through the Kristjan Jaak Scholarship programme (Racké, Forsthuber and Crosier, 2013[164]). This initiative funds stays abroad of academics under 35, covering both travel expenses and accommodation. During these short-term visits, Estonian academics are expected to conduct fieldwork, get to know other educational facilities, contact international faculty and experts or take part in conferences (Education Agency, Archimedes Foundation, 2019[167]).

A review of policies to enhance teaching and learning among higher education institutions in Europe identified student and staff exchanges, among other activities, as major means of enhancing learning and teaching in general, and for the development of teaching staff in particular (Gaebel et al., 2018[168]).

Reliable data on academic circulation is scarce, with no country holding a comprehensive system for recording or monitoring skilled migration flows (especially data on returns and circulation) at the international level (Wickramasekara, 2003[169]).

### *Retirement*

About 55% of academic staff in higher education in OECD countries are 45 years old or older. This age distribution is important in human resource forecasting and for higher education workforce planning in the long-term (2020-2040) in member countries (OECD, 2019[3]). For example, in some systems, delayed retirement is slowing the entry into the career by younger academics, a phenomenon that may have negative effects on productivity and innovation in higher education.

To deal with the issue, some systems have set a mandatory retirement age, or have offered financial incentives to timely retirement. However, critics point out the discriminatory character of compulsory retirement and the failure to acknowledge the contributions of older academics. Provisions to allow staff to contribute in retirement (e.g. emeritus professor appointments), can make retirement more attractive to both academics and their institutions.

An alternative perspective is to focus on the longevity, rather than ageing, of the workforce. This view suggests considering flexibility of retirement age accompanied by flexible work arrangements and changing duties with age. Consideration should be given to encouraging senior academic staff to focus on advising and mentoring younger colleagues (Weinberg and Scott, 2013[170]).

In the United States, the government eliminated the retirement age at 70 years old in 1986 through the Federal Age Discrimination in Employment Act, and the exemption for higher education was lifted in 1993. A review of the literature on the effects of age on performance concludes that there is no strong relationship between age and performance. Many older academics remain active and productive in research, implying that responses to the question of the ageing of staff should relate to the performance of individuals, rather than their age (Willekens, 2008[43]). A recent large-scale analysis in Norway corroborates this finding – most of the variance in publication rate at the individual level is due to other factors beyond age (as well as gender and academic position), and the effect of age varies significantly across different fields of study (Rørstad and Aksnes, 2015[171]).

## References


AAAS (2019), *Become a S&T Policy Fellow*, https://www.aaas.org/programs/science-technology-policy-fellowships/become-st-policy-fellow (accessed on 9 April 2019). [156]

Aarnikoivu, M. et al. (2019), "Working outside academia? Perceptions of early-career, fixed-term researchers on changing careers", *European Journal of Higher Education*, Vol. 9/2, pp. 172-189, http://dx.doi.org/10.1080/21568235.2018.1548941. [66]

ACE (2014), *Unbundling Versus Designing Faculty Roles*, American Council on Education, Washington, https://www.acenet.edu/Documents/Unbundling-Versus-Designing-Faculty-Roles.pdf (accessed on 18 November 2019). [97]

ACU (2008), *Human Resource Management in Commonwealth Universities*, The Association of Commonwealth Universities, London, https://www.acu.ac.uk/publication/view?publication=186 (accessed on 3 April 2019). [135]

AdvanceHE (2019), *Advance HE*, https://www.advance-he.ac.uk/about-us (accessed on 27 March 2019). [153]

AFT (2019), *Accreditation standards for academic staffing*, American Federation of Teachers, https://www.aft.org/position/academic-staffing/accreditation-standards-academic-staffing (accessed on 15 April 2019). [146]

Altbach, P. et al. (2012), *Paying the professoriate: a global comparison of compensation and contracts*, Routledge, New York. [134]

Altbach, P., M. Yudkevich and L. Rumbley (2015), "Academic inbreeding: local challenge, global problem", *Asia Pacific Education Review*, Vol. 16/3, pp. 317-330, http://dx.doi.org/10.1007/s12564-015-9391-8. [9]

Baldwin, R. and M. Wawrzynski (2011), "Contingent Faculty as Teachers", *American Behavioral Scientist*, Vol. 55/11, pp. 1485-1509, http://dx.doi.org/10.1177/0002764211409194. [69]

Baltaru, R. (2019), "Do non-academic professionals enhance universities' performance? Reputation vs. organisation", *Studies in Higher Education*, Vol. 44/7, pp. 1183-1196, http://dx.doi.org/10.1080/03075079.2017.1421156. [30]

Baltaru, R. (2019), "Universities' pursuit of inclusion and its effects on professional staff: the case of the United Kingdom", *Higher Education*, Vol. 77/4, pp. 641-656, http://dx.doi.org/10.1007/s10734-018-0293-7. [24]

Bertrand, C. (2014), *Soutenir la transformation pédagogique dans l'enseignement supérieur (Supporting the transformation of teaching in higher education)*, Ministère de l'éducation nationale, de l'enseignement supérieur et de la recherche, https://www.ladocumentationfrancaise.fr/rapports-publics/144000579-soutenir-la-transformation-pedagogique-dans-l-enseignement-superieur (accessed on 20 September 2019). [145]

Bettinger, E. and S. Loeb (2017), "Promises and pitfalls of online education", *Evidence Speaks Reports*, Vol. 2/15, pp. 1-4, https://www.brookings.edu/research/promises-and-pitfalls-of-online-education/. [105]

Bettinger, E. and B. Long (2010), "Does Cheaper Mean Better? The Impact of Using Adjunct Instructors on Student Outcomes", *Review of Economics and Statistics*, Vol. 92/3, pp. 598-613, http://dx.doi.org/10.1162/rest_a_00014. [74]

Bettinger, E. and B. Long (2004), *Do College Instructors Matter? The Effects of Adjuncts and Graduate Assistants on Students' Interests and Success*, National Bureau of Economic Research, Cambridge, MA, http://dx.doi.org/10.3386/w10370. [70]

Bianchi, N. (2019), *The Indirect Effects of Educational Expansions: Evidence from a Large Enrollment Increase in University Majors*, The University of Chicago, Chicago, http://dx.doi.org/10.1086/706050. [58]

Borges, F. (2015), "A EaD no Brasil e o Processo de Democratização do Acesso ao Ensino Superior: Diálogos Possíveis", *EAD em foco*, Vol. 5/3, http://eademfoco.cecierj.edu.br/index.php/Revista/article/view/283/153 (accessed on 20 September 2019). [114]

Bossu, C. and N. Brown (2018), *Professional and support staff in higher education*, Springer, Singapore. [2]

Bothwell, E. (2017), *Imperial vice-provost: TEF a 'godsend' for university teaching*, https://www.timeshighereducation.com/news/imperial-vice-provost-tef-godsend-university-teaching. [125]

Bradley, D. et al. (2008), *Review of Australian Higher Education: Final Report*, Australian Government, Canberra. [51]

Braga, M., M. Paccagnella and M. Pellizzari (2014), "Evaluating students' evaluations of professors", *Economics of Education Review*, Vol. 41/August, pp. 71-88, http://dx.doi.org/10.1016/j.econedurev.2014.04.002. [118]

Brower, A. and A. James (2020), "Research performance and age explain less than half of the gender pay gap in New Zealand universities", *PLOS ONE*, Vol. 15/1, p. e0226392, http://dx.doi.org/10.1371/journal.pone.0226392. [133]

Bruno, M. (2011), "Políticas afirmativas para a inclusão do surdo no ensino superior (Affirmative policies for the inclusion of the deaf in higher education)", *Revista Brasileira de Estudos Pedagógicos*, Vol. 92/232, pp. 542-556, http://dx.doi.org/10.24109/2176-6681.rbep.92i232.666. [27]

Bunescu, L. and M. Gaebel (2018), *National Initiatives in Learning and Teaching in Europe A report from the European Forum for Enhanced Collaboration in Teaching (EFFECT) project*, European University Association, Brussels, http://www.eua.eu (accessed on 2 April 2019). [130]

Carrell, S. and J. West (2010), "Does Professor Quality Matter? Evidence from Random Assignment of Students to Professors", *Journal of Political Economy*, Vol. 118/3, pp. 409-432, http://dx.doi.org/10.1086/653808. [72]

Chalmers, D. and L. Hunt (2016), "Evaluation of teaching", *HERDSA Review of Higher Education*, Vol. 3, pp. 25-55, http://www.herdsa.org.au/herdsa-review-higher-education-vol-3/25-55 (accessed on 2 October 2019). [128]

Chaudron, T. and J. Uhaldeborde (2008), *Contribution à la mise en oeuvre de bureaux d'aide à l'insertion professionnelle dans les universités (Contribution to the implementation of career guidance offices in universities)*, Ministère de l'Enseignement supérieur, de la Recherche et de l'Innovation, http://www.enseignementsup-recherche.gouv.fr/cid22639/rapport-contribution-a-la-mise-en-oeuvre-de-bureaux-d-aide-a-l-insertion-professionnelle-dans-les-universites.html (accessed on 20 September 2019). [26]

Christensen, C. et al. (2011), *Disrupting College: How Disruptive Innovation Can Deliver Quality and Affordability to Postsecondary Education*, Center for American Progress, Washington, https://cdn.americanprogress.org/wp-content/uploads/issues/2011/02/pdf/disrupting_college.pdf (accessed on 24 May 2019). [88]

Cidral, W. et al. (2018), "E-learning success determinants: Brazilian empirical study", *Computers & Education*, Vol. 122/July, pp. 273-290, http://dx.doi.org/10.1016/j.compedu.2017.12.001. [115]

Coates, H. and L. Goedegebuure (2012), "Recasting the academic workforce: why the attractiveness of the academic profession needs to be increased and eight possible strategies for how to go about this from an Australian perspective", *Higher Education*, Vol. 64/6, pp. 875-889, http://dx.doi.org/10.1007/s10734-012-9534-3. [5]

Colvin, C. (2016), *Student retention and learning analytics: a snapshot of Australian practices and a framework for advancement*, ACT: Australian Government Office for Learning and Teaching, Canberra, http://www.olt.gov.au/project-student-retention-and-learning-analytics-snapshot-current-australian-practices-and-framework. [95]

Condon, W. et al. (2016), *Faculty development and student learning: Assessing the connections*, Indiana University Press, Bloomington. [141]

Costa, C. and N. Pimentel (2010), "O sistema Universidade Aberta do Brasil na consolidação da oferta de cursos superiores a distância no Brasil (Brazil's Open University system in the consolidation of distance learning programmes in Brazil)", *ETD - Educação Temática Digital*, Vol. 10/2, pp. 71-90, https://www.ssoar.info/ssoar/handle/document/7170 (accessed on 20 September 2019). [113]

Courant, P. and S. Turner (2017), "Faculty Deployment in Research Universities", *NBER Working Paper 23025*, pp. 1-44, http://dx.doi.org/10.3386/w23025. [139]

Courty, P. and J. Sim (2015), "Retention of talented academic researchers: Evidence from a government intervention", *Canadian Journal of Economics/Revue canadienne d'économique*, Vol. 48/5, pp. 1635-1660, http://dx.doi.org/10.1111/caje.12175. [45]

Curtis, J. and M. Kisielewski (2016), *Faculty Salaries in Sociology and Other Disciplines, 2016 Update*, American Sociological Association, https://www.asanet.org/research-and-publications/research-sociology/research-briefs/faculty-salaries-sociology-and-other-disciplines-2016-update (accessed on 10 October 2019). [138]

de Groot, J. and R. Kouwenaar (2018), *Professionalisation of university lecturers: The UTQ and beyond*, VSNU, The Hague, http://www.vsnu.nl/files/documenten/Professionalisation%20of%20university%20lecturers.pdf (accessed on 29 October 2018). [148]

de la Figuera, J. (2005), "A novel hiring programme for scientists in Spain: The Ramón y Cajal Programme", in Gabaldón, T. et al. (eds.), *Career paths and mobility of researchers in Europe*, Cuvillier, Göttingen, https://books.google.fr/books?id=yAOsWDyhbLgC&source=gbs_navlinks_s (accessed on 20 September 2019). [14]

Deloitte (2012), *The Researchers Report 2012: A Selection of Good Practices*, EC/ DG Research and Innovation. [159]

Deloitte & Touche (2002), *Rewarding and developing staff in HE: evaluation of phases 1 and 2*, Higher Education Funding Council for England, Bristol, https://dera.ioe.ac.uk/5168/1/rd16_02.pdf (accessed on 5 November 2019). [117]

Dewhirst, C. and G. Anna (2019), *Evaluation of learning and teaching*, European University Association, Brussels. [121]

Duran, M. and C. Costa (2016), "Brazilian Open University System: a public policy on distance learning education in Brazil (2005-2010)", *Revista Tecnología, Ciencia y Educación*, Vol. 5, pp. 157-171, https://www.tecnologia-ciencia-educacion.com/index.php/TCE/article/view/102/94 (accessed on 20 September 2019). [112]

Dutch Ministry of Education, C. (2015), *The value of knowledge - Strategic Agenda for Higher Education and Research 2015-2025*, https://www.government.nl/ministries/ministry-of-education-culture-and-science/documents/reports/2015/07/01/the-value-of-knowledge (accessed on 12 October 2018). [131]

Eagan, K. et al. (2014), *Undergraduate Teaching Faculty: The 2013-2014 HERI Faculty Survey*, Higher Education Research Institute at UCLA, Los Angeles, http://www.heri.ucla.edu. (accessed on 25 October 2019). [142]

Education Agency, Archimedes Foundation (2019), *Kristjan Jaak Scholarships*, http://haridus.archimedes.ee/en/kristjan-jaak-scholarships (accessed on 20 September 2019). [167]

Ehrenberg, R. and L. Zhang (2005), "Do Tenured and Tenure-Track Faculty Matter?", *Journal of Human Resources*, Vol. XL/3, pp. 647-659, http://dx.doi.org/10.3368/jhr.xl.3.647. [71]

Engelen, E., R. Fernandez and R. Hendrikse (2014), "How Finance Penetrates its Other: A Cautionary Tale on the Financialization of a Dutch University", *Antipode*, Vol. 46/4, pp. 1072-1091, http://dx.doi.org/10.1111/anti.12086. [32]

ENQA (2015), *Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG)*, European Association for Quality Assurance in Higher Education, Brussels. [12]

Escueta, M. et al. (2017), *Education Technology: An Evidence-Based Review*, National Bureau of Economic Research, Cambridge, MA, http://dx.doi.org/10.3386/w23744. [104]

EUA (2018), *Institutional Evaluation Programme: Guidelines for institutions*, European University Association, Brussels, https://www.iep-qaa.org/images/Guidelines_for_institutions_2018-19.pdf (accessed on 25 March 2019). [36]

European Commission (2015), *The Changing Pedagogical Landscape: New ways of teaching and learning and their implications for higher education policy*, Publications Office of the European Union, Luxembourg, http://dx.doi.org/10.2766/72063. [108]

European Commission (2014), *Report to the European Commission on New modes of learning and teaching in higher education*, Publications Office of the European Union, Luxembourg, http://dx.doi.org/10.2766/81897. [96]

European Commission (2013), *European higher education in the world*, European Commission, Brussels, https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0499:FIN:en:PDF (accessed on 29 April 2019). [163]

European Commission (2006), *Mobility of Researchers between Academia and Industry: 12 Practical Recommendations*, Office for Official Publications of the European Communities, Luxembourg. [161]

European Commission/ EACEA/ Eurydice (2018), *Chapter 2: Learning and Teaching*, Publications Office of the European Union, Luxembourg, http://dx.doi.org/10.2797/63509. [106]

European Commission/ EACEA/ Eurydice (2018), *France: Conditions of Service for Academic Staff Working in Higher Education*, Eurydice, https://eacea.ec.europa.eu/national-policies/eurydice/france/conditions-service-academic-staff-working-higher-education_en. [78]

European Commission/EACEA/Eurydice (2017), *Modernisation of Higher Education in Europe: Academic Staff - 2017*, Publications Office of the European Union, Luxembourg. [11]

European Migration Network (2019), *Attracting and Retaining International Students in the EU*, European Migration Network, Brussels, https://ec.europa.eu/home-affairs/sites/homeaffairs/files/00_eu_international_students_2018_synthesis_report.pdf (accessed on 20 September 2019). [49]

Eurydice (2018), *National Education Systems*, European Commission, https://eacea.ec.europa.eu/national-policies/eurydice/national-description_en (accessed on 22 June 2018). [136]

Figlio, D., M. Schapiro and K. Soter (2015), "Are Tenure Track Professors Better Teachers?", *Review of Economics and Statistics*, Vol. 97/4, pp. 715-724, http://dx.doi.org/10.1162/rest_a_00529. [75]

Finkelstein, M., V. Conley and J. Schuster (2016), *The faculty factor: reassessing the American academy in a turbulent era*, Johns Hopkins University Press, Baltimore. [40]

Fox, M. (1992), "Research, Teaching, and Publication Productivity: Mutuality Versus Competition in Academia", *Sociology of Education*, Vol. 65/4, p. 293, http://dx.doi.org/10.2307/2112772. [87]

Frølich, N. et al. (2018), *Academic career structures in Europe: Perspectives from Norway, Denmark, Sweden, Finland, the Netherlands, Austria and the UK*, Nordic Institute for Studies in Innovation, Research and Education, Oslo. [4]

Fumasoli, T., G. Goastellec and B. Kehm (2015), "Introduction: Understanding Change in the Academic Profession Through the Perceptions of Academics and Institutional Leadership", in Fumasoli, T., G. Goastellec and B. Kehm (eds.), *Academic Work and Careers in Europe: Trends, Challenges, Perspectives*, Springer, Heidelberg, https://doi.org/10.1007/978-3-319-10720-2_1. [59]

Gaebel, M. et al. (2018), *Trends 2018: Learning and teaching in the European Higher Education Area*, EUA, Brussels, https://eua.eu/downloads/publications/trends-2018-learning-and-teaching-in-the-european-higher-education-area.pdf (accessed on 16 April 2019). [168]

Gibbs, G. (2017), "Evidence does not support the rationale of the TEF", *Compass: Journal of Learning and Teaching*, Vol. 10/2, http://dx.doi.org/10.21100/compass.v10i2.496. [123]

Gillard, J. (2008), *Changes to Learning and Teaching Performance Fund*, Australian Government, https://ministers.jobs.gov.au/gillard/changes-learning-and-teaching-performance-fund (accessed on 5 April 2019). [147]

Goldfarb, B. and M. Henrekson (2003), "Bottom-up versus top-down policies towards the commercialization of university intellectual property", *Research Policy*, Vol. 32/4, pp. 639-658, http://dx.doi.org/10.1016/s0048-7333(02)00034-3. [31]

Gordon, G. and C. Whitchurch (2007), "Managing Human Resources in Higher Education: The Implications of a Diversifying Workforce", *Higher Education Management and Policy*, Vol. 19/2, https://dx.doi.org/10.1787/hemp-v19-art14-en. [22]

Gunn, A. (2018), "The UK Teaching Excellence Framework (TEF): The Development of a New Transparency Tool", in *European Higher Education Area: The Impact of Past and Future Policies*, Springer International Publishing, Cham, http://dx.doi.org/10.1007/978-3-319-77407-7_31. [122]

Gyurko, J. et al. (2016), *Why Colleges and Universities Need to Invest in Quality Teaching More Than Ever: Faculty Development, Evidence-Based Teaching Practices, and Student Success*, ACUE-ACE, http://acue.org/wp-content/uploads/2018/07/ACUE-White-Paper1.pdf (accessed on 24 October 2019). [63]

Hanover Research Council (2009), *Identifying, Attracting, and Retaining Early Career Academics: Strategies and Mechanisms Used by Universities in First World Countries*, Hanover Research Council, Hanover, http://www.planning.salford.ac.uk/__data/assets/pdf_file/0004/20659/Identifying,-Attracting-and-Retaining-Early-Career-Academics-Membership.pdf (accessed on 5 July 2018). [44]

Hattie, J. and H. Marsh (1996), "The Relationship between Research and Teaching: A Meta-Analysis", *Review of Educational Research*, Vol. 66/4, pp. 507–542, http://dx.doi.org/10.2307/1170652. [89]

HEFCE (2010), *The higher education workforce framework 2010: Main report*, Higher Education Funding Council for England, https://dera.ioe.ac.uk/978/1/10_05a.pdf (accessed on 3 April 2019). [35]

HEFCE (2000), *Rewarding and developing staff in higher education*, Higher Education Funding Council for England, Bristol, https://dera.ioe.ac.uk/5960/1/0056.pdf (accessed on 5 November 2019). [116]

Helms, R. et al. (2015), *Internationalizing Higher Education Worldwide: National Policies and Programs*, American Council on Education, Washington DC. [162]

Hemelt, S. et al. (2018), "Why is Math Cheaper than English? Understanding Cost Differences in Higher Education", No. 25314, NBER, Cambridge, https://www.nber.org/papers/w25314.pdf (accessed on 28 March 2019). [38]

Henard, F. (2017), *Review of the National Forum for the Enhancement of Teaching and Learning*, Learning Avenue, Paris, https://hea.ie/assets/uploads/2017/04/Review-of-the-National-Forum-for-the-Enhancement-of-Teaching-and-Learning-2.pdf (accessed on 20 September 2019). [126]

Henderikx, P. and D. Jansen (2018), *The Changing Pedagogical Landscape: In search of patterns in policies and practices of new modes of teaching and learning*, European Association of Distance Teaching Universities, Maastricht, https://tinyurl.com/CPLreport2018. [109]

Hengel, E. (2017), "Publishing while female. Are women held to higher standards? Evidence from peer review.", https://doi.org/10.17863/CAM.17548. [120]

Horta, H. (2013), "Deepening our understanding of academic inbreeding effects on research information exchange and scientific output: new insights for academic based research", *Higher Education*, Vol. 65/4, pp. 487–510, http://dx.doi.org/10.1007/s10734-012-9559-7. [155]

Horta, H., M. Sato and A. Yonezawa (2010), "Academic inbreeding: exploring its characteristics and rationale in Japanese universities using a qualitative perspective", *Asia Pacific Education Review*, Vol. 12/1, pp. 35-44, http://dx.doi.org/10.1007/s12564-010-9126-9. [17]

Horta, H., F. Veloso and R. Grediaga (2010), "Navel gazing: academic inbreeding and scientific productivity", *Management Science*, Vol. 56/3, pp. 414-429, https://doi.org/10.1287/mnsc.1090.1109. [10]

Hovdhaugen, E. and H. Gunnes (2019), *What ETER tells us about gender balance among academic staff in European HEIs*, https://eter-project.com/uploads/assets/pdf/ETER_gender.pdf (accessed on 25 September 2019). [52]

Hugo, G. and A. Morriss (2010), *Investigating The Ageing Academic Workforce: Stocktake*, The National Centre for Social Applications of Geographic Information Systems, Adelaide, http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.177.2863&rep=rep1&type=pdf (accessed on 20 September 2019). [50]

Huisman, J., E. De Weert and J. Bartelse (2002), "Academic Careers from a European Perspective", *The Journal of Higher Education*, Vol. 73/1, pp. 141-160, http://dx.doi.org/10.1080/00221546.2002.11777134org/10.1080/00221546.2002.11777134. [56]

Hurlburt, S. and M. McGarrah (2016), *The Shifting Academic Workforce: Where Are the Contingent Faculty?*, TIAA Institute, New York. [68]

Hüther, O. and G. Krücken (2018), "Recent Reforms in the German Higher Education System", in *Higher Education Dynamics, Higher Education in Germany—Recent Developments in an International Perspective*, Springer International Publishing, Cham, http://dx.doi.org/10.1007/978-3-319-61479-3_2. [84]

ILO (2019), *Final report, Global Dialogue Forum on Employment Terms and Conditions in Tertiary Education*, International Labour Office, Geneva. [6]

ILO (2018), *Employment terms and conditions in tertiary education: Issues paper for discussion at the Global Dialogue Forum on Employment Terms and Conditions in Tertiary Education (Geneva, 18–20 September 2018)*, International Labour Organisation, Geneva. [76]

ILO (2016), *Non-standard employment around the world: Understanding challenges, shaping prospects*, International Labour Office, Geneva. [7]

ILO-UNESCO (2016), *The ILO/UNESCO Recommendation concerning the Status of Teachers (1966 ) and the UNESCO Recommendation concerning the Status of Higher-Education Teaching Personnel (1997) – Revised edition 2016*, International Labour Office, Geneva. [81]

Inanc, O. and O. Tuncer (2011), "The effect of academic inbreeding on scientific effectiveness", *Scientometrics*, Vol. 88/3, pp. 885-898, https://doi.org/10.1007/s11192-011-0415-9. [154]

Jaeger, A. and M. Eagan (2011), "Examining Retention and Contingent Faculty Use in a State System of Public Higher Education", *Educational Policy*, Vol. 25/3, pp. 507-537, http://dx.doi.org/10.1177/0895904810361723. [73]

Jarboe, N. (2017), *Women Count: Australian Universities 2016*, WomenCount, https://womencountblog.files.wordpress.com/2017/03/womencount-autralian-report_screen-res.pdf (accessed on 25 September 2019). [53]

Jarrell, A. (2019), *Assessing teaching in higher education: Current issues, trends and recommendations*, ILO Publishing, Geneva. [129]

Jongbloed, B. et al. (2018), "Performance Agreements in Higher Education: A New Approach to Higher Education Funding", in Curaj, A., L. Deca and R. Pricopie (eds.), *European Higher Education Area: The Impact of Past and Future Policies*, Springer International Publishing, Cham, http://dx.doi.org/10.1007/978-3-319-77407-7_40. [127]

Jongmanns, G. (2011), *Evaluation des Wissenschaftszeitvertragsgesetzes (WissZeitVG) (Evaluation of the Law on Fixed-term Contracts in Science)*, HIS Institut für Hochschulentwicklung, Hannover, https://his-he.de/fileadmin/user_upload/Publikationen/Forum_Hochschulentwicklung/fh-201104.pdf (accessed on 20 September 2019). [83]

Jonker, L. and M. Hicks (2014), *Teaching Loads and Research Outputs of Ontario University Faculty Members: Implications for Productivity and Differentiation*, Higher Education Quality Council of Ontario, Toronto. [91]

Karran, T., K. Beiter and K. Appiagyei-Atua (2017), "Measuring academic freedom in Europe: a criterion referenced approach", *Policy Reviews in Higher Education*, Vol. 1/2, pp. 209-239, http://dx.doi.org/10.1080/23322969.2017.1307093. [67]

Karran, T. and L. Mallinson (2017), *Academic Freedom in the U.K.: Legal and Normative Protection in a Comparative Context*, University and College Union, London, https://www.ucu.org.uk/media/8614/Academic-Freedom-in-the-UK-Legal-and-Normative-Protection-in-a-Comparative-Context-Report-for-UCU-Terence-Karran-and-Lucy-Mallinson-May-17/pdf/ucu_academicfreedomstudy_report_may17.pdf (accessed on 6 July 2018). [82]

Kavka, J. (2017), "Comment la professionnalisation à l'université s'articule aux initiatives européennes et internationales (How professionalisation in universities links to European and international initiatives)", *http://journals.openedition.org/formationemploi* 138, pp. 19-38, https://journals.openedition.org/formationemploi/5059 (accessed on 20 September 2019). [25]

Kehm, B. (2019), "Germany: Unpredictable Career Progression but Security at the Top", in Finkelstein, M. and G. Jones (eds.), *Professorial Pathways: Academic Careers in a Global Perspective*, JHU Press. [77]

Kehm, B. (2006), "Doctoral Education in Germany within the European Framework", in Gorzka, G. and U. Lanzendorf (eds.), *Europeanising Doctoral Studies: The Russian Federation and Germany on the Way to Bologna*, Kassel University Press, Kassel. [19]

Kelchen, R. (2018), *Is Administrative Bloat Really a Big Problem?*, https://robertkelchen.com/2018/05/10/is-administrative-bloat-a-problem/ (accessed on 25 November 2019). [37]

Kezar, A. and D. Maxey (2013), "The Changing Academic Workforce - AGB", *Trusteeship*, Vol. 21/3, https://agb.org/trusteeship-article/the-changing-academic-workforce/ (accessed on 25 October 2019). [64]

Klopper, C. and B. Power (2014), "The Casual Approach to Teacher Education: What Effect Does Casualisation Have for Australian University Teaching?", *Australian Journal of Teacher Education*, Vol. 39/4, p. 39, http://dx.doi.org/10.14221/ajte.2014v39n4.1. [65]

Kreckel, R. (2017), "University Career Models and International Staff Mobility. Germany, France, Great Britain, USA and Russia Compared", *SSRN Electronic Journal*, http://dx.doi.org/10.2139/ssrn.2924590. [18]

Laudel, G. and J. Gläser (2007), "From apprentice to colleague: The metamorphosis of Early Career Researchers", *Higher Education*, Vol. 55/3, pp. 387-406, http://dx.doi.org/10.1007/s10734-007-9063-7. [61]

Laurillard, D. (2016), "How should professors adapt to the changing digital education environment?", in *From Books to MOOCs?: Emerging Models of Learning and Teaching in Higher Education*, Portland Press, London. [102]

Laurillard, D. (2015), "Thinking about Blended Learning. A paper for the Thinkers in Residence programme", in Van der Perre, G. and J. Van Campenhout (eds.), *Higher education in the digital era*, KVAB, Brussels, https://www.kvab.be/sites/default/rest/blobs/77/tw_blended-learning_en.pdf. [103]

Lawson, C. et al. (2019), "Citizens of somewhere: Examining the geography of foreign and native-born academics' engagement with external actors", *Research Policy*, Vol. 48/3, pp. 759-774, http://dx.doi.org/10.1016/j.respol.2018.11.008. [165]

Lillejord, S. et al. (2018), *Learning and teaching with technology in higher education – a systematic review*, Knowledge Centre for Education, Oslo. [100]

Lindberg-Sand, Å. and A. Sonesson (2008), "Compulsory Higher Education Teacher Training in Sweden: Development of a national standards framework based on the Scholarship of Teaching and Learning", *Tertiary Education and Management*, Vol. 14/2, pp. 123-139, http://dx.doi.org/10.1080/13583880802053051. [143]

Link, A., C. Swann and B. Bozeman (2008), "A time allocation study of university faculty", *Economics of Education Review*, Vol. 27/4, pp. 363-374, http://dx.doi.org/10.1016/j.econedurev.2007.04.002. [94]

Löther, A. (2019), "Is It Working? An Impact Evaluation of the German "Women Professors Program"", *Social Sciences*, Vol. 8/4, p. 116, http://dx.doi.org/10.3390/socsci8040116. [54]

Marsh, H. and J. Hattie (2002), "The Relation between Research Productivity and Teaching Effectiveness", *The Journal of Higher Education*, Vol. 73/5, pp. 603-641, http://dx.doi.org/10.1080/00221546.2002.11777170. [90]

Martins, V. (2006), "Implicações e conquistas da atuação do intérprete de língua de sinais no Ensino Superior (Implications and achievements of the Sign Language Interpreter in Higher Education)", *ETD - Educação Temática Digital*, Vol. 7/2, pp. 158-167, http://dx.doi.org/10.20396/etd.v7i2.800. [28]

May, R., G. Strachan and D. Peetz (2013), "Workforce development and renewal in Australian universities and the management of casual academic staff", *Journal of University Teaching & Learning Practice*, Vol. 10/3, http://ro.uow.edu.au/jutlp/vol10/iss3/3 (accessed on 27 March 2019). [41]

McDonald, J. and J. Sorensen (2017), "Academic salary compression across disciplines and over time", *Economics of Education Review*, Vol. 59, pp. 87-104, http://dx.doi.org/10.1016/j.econedurev.2017.06.003. [140]

Mengel, F., J. Sauermann and U. Zölitz (2019), "Gender Bias in Teaching Evaluations", *Journal of the European Economic Association*, Vol. 17/2, pp. 535-566, http://dx.doi.org/10.1093/jeea/jvx057. [119]

Middlehurst, R. (2004), "Changing Internal Governance: A Discussion of Leadership Roles and Management Structures in UK Universities", *Higher Education Quarterly*, Vol. 58/4, pp. 258-279, http://dx.doi.org/10.1111/j.1468-2273.2004.00273.x. [33]

Milem, J., J. Berger and E. Dey (2000), "Faculty Time Allocation", *The Journal of Higher Education*, Vol. 71/4, pp. 454-475, http://dx.doi.org/10.1080/00221546.2000.11778845. [92]

Ministerio de Ciencia e Innovación (2011), *10 años del Programa Ramón y Cajal: Informe de resultados (10 years of the Ramón y Cajal programme: report on results)*, Ministerio de Ciencia e Innovación, http://www.ciencia.gob.es/stfls/MICINN/Investigacion/FICHEROS/FicherosNotasPrensa/ResultadosEncuesta10RyC%20final_web.pdf (accessed on 20 September 2019). [15]

Mitacs (2019), *Canadian Science Policy Fellowship*, https://www.mitacs.ca/en/programs/canadian-science-policy-fellowship (accessed on 9 April 2019). [157]

Natow, R., V. Reddy and M. Grant (2017), *How and Why Higher Education Institutions Use Technology in Developmental Education Programming A CAPR Working Paper*, https://postsecondaryreadiness.org/wp-content/uploads/2017/09/how-why-higher-education-institutions-use-technology-developmental-education-programming.pdf (accessed on 26 March 2019). [101]

NCES (2019), *National Study of Postsecondary Faculty*, National Center for Education Statistics, https://nces.ed.gov/surveys/nsopf/index.asp (accessed on 30 March 2020). [20]

Ödalen, J. et al. (2018), "Teaching university teachers to become better teachers: the effects of pedagogical training courses at six Swedish universities", *Higher Education Research & Development*, Vol. 38/2, pp. 339-353, http://dx.doi.org/10.1080/07294360.2018.1512955. [144]

O'Donoughue Jenkins, L. and K. Anstey (2017), "The use of secondments as a tool to increase knowledge translation", *Public Health Research & Practice*, Vol. 27/1, http://dx.doi.org/10.17061/phrp2711708. [158]

OECD (2019), *Benchmarking Higher Education System Performance*, Higher Education, OECD Publishing, Paris, https://dx.doi.org/10.1787/be5514d7-en. [3]

OECD (2019), *OECD Review of Higher Education, Research and Innovation: Portugal*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264308138-en. [57]

OECD (2019), *The Future of Mexican Higher Education: Promoting Quality and Equity*, Reviews of National Policies for Education, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264309371-en. [107]

OECD (2018), *OECD Reviews of Innovation Policy: Austria 2018*, OECD Reviews of Innovation Policy, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264309470-en. [85]

Palali, A. et al. (2018), "Are good researchers also good teachers? The relationship between research quality and teaching quality", *Economics of Education Review*, Vol. 64, pp. 40-49, http://dx.doi.org/10.1016/j.econedurev.2018.03.011. [86]

Parsons, D. et al. (2012), *The impact of teaching development programmes: literature review | Advance HE*, The Higher Education Academy, York. [150]

Pérez, M. (2015), "Incidencia de la nueva Ley de la Ciencia en el régimen jurídico de las universidades (Impact of the new Science Law on the legal regime for universities)", *Revista de Administración Pública* 187, pp. 269-304, https://recyt.fecyt.es/index.php/RAP/article/view/40495 (accessed on 20 September 2019). [166]

Racké, C., B. Forsthuber and D. Crosier (2013), *Staff Mobility in Higher Education: National Policies and Programmes*, Eurydice, Brussels, http://eacea.ec.europa.eu/education/eurydice/focus-on/documents/156EN.pdf (accessed on 13 March 2018). [164]

Rienties, B., N. Brouwer and S. Lygo-Baker (2013), "The effects of online professional development on higher education teachers' beliefs and intentions towards learning facilitation and technology", *Teaching and Teacher Education*, Vol. 29, pp. 122-131, http://dx.doi.org/10.1016/j.tate.2012.09.002. [149]

Rørstad, K. and D. Aksnes (2015), "Publication rate expressed by age, gender and academic position – A large-scale analysis of Norwegian academic staff", *Journal of Informetrics*, Vol. 9/2, pp. 317-333, http://dx.doi.org/10.1016/j.joi.2015.02.003. [171]

Rossetto, E. (2009), *Sujeitos com deficiência no ensino superior : vozes e significados*, Universidade Federal do Rio Grande do Sul, https://lume.ufrgs.br/handle/10183/21375 (accessed on 20 September 2019). [29]

Rust, C. (2017), "The Emperor has no clothes", *Compass: Journal of Learning and Teaching*, Vol. 10/2, http://dx.doi.org/10.21100/compass.v10i2.406. [124]

Sánchez, J. (2016), "Los contratos de trabajo del personal docente e investigador en la vigente Ley Orgánica de Universidades (Employment contracts for teaching and research staff under the current Organic Law for Universities)", in Ballester Laguna, F. (ed.), *El estatuto profesional del personal investigador contratado en régimen laboral*, INAP, Madrid, https://dialnet.unirioja.es/servlet/libro?codigo=661798 (accessed on 20 September 2019). [47]

Sangrà, A. (2002), "A New Learning Model for the Information and Knowledge Society: The Case of the Universitat Oberta de Catalunya (UOC), Spain", *The International Review of Research in Open and Distributed Learning*, Vol. 2/2, http://dx.doi.org/10.19173/irrodl.v2i2.55. [110]

Sanz-Menéndez, L. et al. (2002), "Una nueva política de recursos humanos en i+d. El Programa Ramón y Cajal. (A new policy for human resources in R&D: the Ramón y Cajal Programme)", *Economía Industrial*, Vol. 343/1, pp. 149-160, https://www.mincotur.gob.es/Publicaciones/Publicacionesperiodicas/EconomiaIndustrial/RevistaEconomiaIndustrial/343/147-SANZ.pdf (accessed on 20 September 2019). [13]

Schneijderberg, C. and N. Merkator (2012), "The New Higher Education Professionals", in Kehm, B. and U. Teichler (eds.), *The Academic Profession in Europe: New Tasks and New Challenges*, Springer Netherlands, Dordrecht, http://dx.doi.org/10.1007/978-94-007-4614-5_5. [23]

Shattock, M. (2009), "Entrepreneurialism and organisational change in higher education", in *Entrepreneurialism in universities and the knowledge economy*, Open University Press, Maidenhead. [34]

Stange, K. (2013), "Differential Pricing in Undergraduate Education: Effects on Degree Production by Field", No. 19183, NBER, Cambridge, http://www.nber.org/papers/w19183 (accessed on 28 March 2019). [39]

Stes, A. et al. (2010), "The impact of instructional development in higher education: The state-of-the-art of the research", *Educational Research Review*, Vol. 5/1, pp. 25-49, http://dx.doi.org/10.1016/j.edurev.2009.07.001. [151]

Teichler, U., A. Arimoto and W. Cummings (2013), *The Changing Academic Profession: Major Findings of a Comparative Survey*, Springer, Dordrecht. [93]

Teixeira, P. (2017), "A Bastion of Elitism or an Emerging Knowledge Proletariat? Some Reflections About Academic Careers with an Economic Slant", in *Challenges and Options: The Academic Profession in Europe*, Springer International Publishing, Cham, http://dx.doi.org/10.1007/978-3-319-45844-1_3. [60]

TEQSA (2018), *TEQSA's Risk Assessment Framework*, Australian Government, Tertiary Education Quality and Standards Agency, https://www.teqsa.gov.au/sites/default/files/teqsa-risk-assessment-framework-v2-3-4-horizontal-layout-web.pdf?v=1564542617 (accessed on 8 November 2019). [42]

TEQSA (2017), *Higher Education Standards Framework (Threshold Standards) 2015 – TEQSA Contextual Overview*, Australian Government, Tertiary Education Quality and Standards Agency, https://www.teqsa.gov.au/sites/g/files/net2046/f/hesf-2015-teqsa-contextual-overview-v1-1.pdf (accessed on 8 November 2019). [21]

The Finnish Union of University Researchers and Teachers (2016), *Working at the university*, Helsinki, https://tieteentekijoidenliitto.fi/files/1409/Working_at_the_university.pdf (accessed on 29 October 2018). [137]

Tømte, C. et al. (2019), "Digitalisation in higher education: mapping institutional approaches for teaching and learning", *Quality in Higher Education*, Vol. 25/1, pp. 98-114, http://dx.doi.org/10.1080/13538322.2019.1603611. [111]

Torres-Salinas, D. and E. Jiménez-Contreras (2015), "El efecto Cajal: análisis bibliométrico del Programa Ramón y Cajal en la Universidad de Granada (The "Cajal effect": bibliometric analysis of the Ramón y Cajal programme at the University of Granada)", *Revista española de Documentación Científica*, Vol. 38/1, p. e075, http://dx.doi.org/10.3989/redc.2015.1.1127. [16]

Turpin, D., L. De Decker and B. Boyd (2014), "Historical changes in the Canadian university presidency: An empirical analysis of changes in length of service and experience since 1840", *Canadian Public Administration*, Vol. 57/4, pp. 573-588, http://dx.doi.org/10.1111/capa.12087. [152]

UCEA (2018), *Higher Education Workforce Report 2018*, Universities & Colleges Employers Association, London, https://www.ucea.ac.uk/library/publications/he-workforce-report-2018/. [80]

UCEA (2017), *Higher Education Workforce Survey 2017*, Universities and Colleges Employers Association, London, https://www.ucea.ac.uk/library/publications/Higher-Education-Workforce-Survey-2017/. [79]

UOE (2018), *UNESCO-UIS / OECD / EUROSTAT Data Collection on formal education - Manual on concepts, definitions and classifications*, UOE, Montreal, Paris, Luxembourg, http://uis.unesco.org/sites/default/files/documents/uoe2016manual_11072016_0.pdf (accessed on 3 July 2018). [1]

van den Brink, M., Y. Benschop and W. Jansen (2010), "Transparency in Academic Recruitment: A Problematic Tool for Gender Equality?", *Organization Studies*, Vol. 31/11, pp. 1459-1483, http://dx.doi.org/10.1177/0170840610380812. [8]

Vandevelde, K. (2014), *Intersectoral Mobility: Report from the 2014 ERAC mutual learning workshop on Human Resources*, EU, Brussels. [160]

Veintimilla, S. and A. Espín (2014), "La acreditación y promoción del profesorado en la universidad española: situación, tendencias y perspectivas de futuro (The accreditation and promotion of professors in Spanish universities: situation, trends and perspectives)", *REDU: Revista de Docencia Universitaria*, Vol. 12/4, pp. 39-62, https://dialnet.unirioja.es/servlet/articulo?codigo=4907928 (accessed on 20 September 2019). [48]

VSNU et al. (2019), *Room for everyone's talent: towards a new balance in recognising and rewarding academics*, VSNU, The Hague, https://www.vsnu.nl/en_GB/news-items.html/nieuwsbericht/543-kennissector-zet-grote-stap-vooruit-in-nieuwe-manier-erkennen-waarderen (accessed on 15 November 2019). [132]

Weinberg, B. and D. Galenson (2019), "Creative Careers: The Life Cycles of Nobel Laureates in Economics", *De Economist*, Vol. 167/3, pp. 221-239, http://dx.doi.org/10.1007/s10645-019-09339-9. [46]

Weinberg, S. and M. Scott (2013), "The Impact of Uncapping of Mandatory Retirement on Postsecondary Institutions", *Educational Researcher*, Vol. 42/6, pp. 338-348, http://dx.doi.org/10.3102/0013189x13497993. [170]

Whitchurch, C. (2008), "Shifting Identities and Blurring Boundaries: the Emergence of Third Space Professionals in UK Higher Education", *Higher Education Quarterly*, Vol. 62/4, pp. 377-396, https://doi.org/10.1111/j.1468-2273.2008.00387.x. [98]

White, S. and S. White (2016), "Learning Designers in the 'Third Space': The Socio-Technical Construction of MOOCs and Their Relationship to Educator and Learning Designer Roles in HE", *Journal of Interactive Media in Education*, Vol. 17/1, pp. 1-12, http://dx.doi.org/10.5334/jime.429. [99]

Wickramasekara, P. (2003), *Policy responses to skilled migration: Retention, return and circulation*, International Labour Office, Geneva, https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---migrant/documents/publication/wcms_232366.pdf (accessed on 29 April 2019). [169]

Willekens, F. (2008), "Demography and Higher Education: The Impact on the Age Structure of Staff and Human Capital Formation", in *Higher Education to 2030, Volume 1, Demography*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264040663-4-en. [43]

Ylönen, S. (2015), "The position of Finnish and Swedish as well as other languages at universities in Finland", in Vila, F. and V. Bretxa (eds.), *Language policy in higher education: the case of medium-sized languages*, Multilingual Matters, Bristol. [55]

Zhang, L. and R. Ehrenberg (2010), "Faculty employment and R&D expenditures at Research universities", *Economics of Education Review*, Vol. 29/3, pp. 329-337, http://dx.doi.org/10.1016/j.econedurev.2009.10.006. [62]