

Higher education in Finland

IHEM Country report

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Abbreviations

AMK	Ammattikorkeakoulu (polytechnics)
AMKOTA	the polytechnic monitoring and evaluation database
CSC	Center for Scientific Computing
EB	European Baccalaureate
FACTE	Finnish Academies of Technology
FINHEEC	Finnish Higher Education Evaluation Council
FNBE	Finnish National Board of Education
GS	Graduate School
HEI	Higher education institution
HOPS	personal study plans
HUT	Helsinki University of Technology
IB	International Baccalaureate
IHEM	International Higher Education Monitor
KOTA	the university monitoring and evaluation database
Sitra	the Finnish Innovation Fund
STI	science, technology and innovation
TEKES	the Finnish Funding Agency for Technology and Innovation
VET	vocational education and training
VTT	Technical Research Centre of Finland

The CHEPS International Higher Education Monitor

The CHEPS International Higher Education Monitor (IHEM) is an ongoing research project, commissioned by the Dutch Ministry of Education, Culture and Science. The project aims to provide higher education policy makers with relevant and up-to-date information on national higher education systems and policy changes. This information is presented through in-depth country reports, comparative thematic reports, annual update reports, statistical bulletins and a statistical data-base. The core countries for which this information is collected and presented include Australia, Austria, Finland, Flanders (Belgium), France, Germany, the Netherlands, Portugal, Sweden and the United Kingdom.

Country reports

Increasingly, governments take international trends into account when developing national higher education policies. Continuing European integration, the increasing mobility of people within the European Union, as well as supra-national initiatives deployed at the European level with respect to higher education (e.g. the Leonardo and Socrates programs) necessitate such an orientation. Policy makers therefore need to have access to adequate information on higher education structures, trends and issues in Europe as well as other countries. New technologies have opened access for everyone to vast amounts of facts and figures on higher education in almost every country. Although these data are indispensable for higher education policy makers and analysts, they often do not provide much in the way of usable information. What is lacking is a frame of reference to properly interpret the data.

Such a framework is offered by the CHEPS International Higher Education Monitor country reports. These reports have a clear structure, describing the higher education infrastructure and the research infrastructure. In addition to an in-depth description of the institutional fabric of the higher education system, the reports address issues of finance, governance and quality in higher education. The country reports provide the frame of reference for the interpretation of policy initiatives, trend-analyses and cross-country comparisons.

A wide scope of sources are used for these country reports including national statistics, (inter)national journals and magazines, national policy documents, research papers, and international documents and databases.

To keep track of the latest (policy) changes in higher education annual update reports are published.

These publications and other information on the IHEM can be found on:

http://www.utwente.nl/cheps/higher_education_monitor

1 INTRODUCTION

1.1 *The Finnish education system*

The welfare of Finnish society is built on education, culture and knowledge (Ministry of Education, 2007a). All children are guaranteed opportunities for study and self-development according to their abilities, irrespective of their place of residence, language or financial status. All pupils are entitled to competent and high-quality education and guidance and to a safe learning environment and well-being. The flexible education system and basic educational security aim at equity and consistency in results. In brief, the Finnish education system is composed of nine-year basic education (comprehensive school), preceded by one year of voluntary pre-primary education; upper secondary education, comprising vocational and general education; and higher education, provided by universities and polytechnics. Adult education is available at all levels. Pre-primary education, basic education and upper secondary education and training, complemented by early childhood education and before- and after-school activities, form a coherent learning pathway that supports children's growth, development and well-being. (Ministry of Education, 2007a).

Both general and vocational upper secondary certificates provide eligibility for further studies in universities and polytechnics. A student completing one level is always eligible for the next level studies. This assures harmony in qualifications and quality and guarantees students' rights to uninterrupted learning paths.

Basic education is general education provided for all. Upper secondary education consists of general education and vocational education and training (vocational qualifications, further and specialist qualifications).

The higher education system comprises universities and polytechnics, in which the admission requirement is a secondary general or vocational diploma. Universities, which are academic or artistic institutions, focus on research and education based on research. They confer Bachelor's, Master's, licentiate and doctoral degrees.

Polytechnics offer work-related education in response to labour market needs. A polytechnic degree requires 3.5 - 4.5 years of full-time study. The requirement for polytechnic Master's programmes is a polytechnic degree or equivalent, plus a minimum of three years of work experience in the field concerned.

Adult education is provided at all levels of education. Adults can study for a general education certificate or for a vocational qualification, or modules included in them, take other courses developing citizenship and work skills, or pursue recreational studies.

1.2 Education policy in Finland

Finnish education and science policy stresses quality, efficiency, equity and internationalism (Ministry of Education, 2008). It is geared to promote the competitiveness of Finnish welfare society. Sustainable economic development will continue to provide the best basis for assuring the nation's cultural, social and economic welfare. The overall lines of Finnish education and science policy are in line with the EU Lisbon strategy.

In Finland, the basic right to education and culture is recorded in the Constitution. Public authorities must secure equal opportunities for every resident in Finland to get education also after compulsory schooling and to develop themselves, irrespective of their financial standing. Legislation provides for compulsory schooling and the right to free pre-primary and basic education. Most other qualifying education is also free for the students, including postgraduate education in universities.

Parliament passes legislation concerning education and research and determines the basic lines of education and science policy. The Government and the Ministry of Education, as part of it, are responsible for preparing and implementing education and science policy. The Ministry of Education is responsible for education financed from the state budget. The Government adopts a development plan for education and research every four years.

1.3 Pre-school

Primary schools and the day-care system offer voluntary pre-school education to mainly 6 year old children in day-care facilities. Pre-school is available free of charge one year before children start actual compulsory schooling. Its aim is to develop children's learning skills as part of early childhood education. Since August 2001 pre-primary education is free of charge. It made part of a restructuring of primary education with the introduction of the new core curriculum, also in August 2001. Pre-primary education can be provided in schools, day-care facilities or other suitable places. Wherever it is provided, it comes under the same legislation. Pre-primary education forms part of the continuum of early childhood education, which in turn helps to level off differences in social background and learning abilities. Local authorities have statutory duty to arrange pre-primary education, but for children participation is voluntary and decided by parents. About 96% of the six-year-olds go to pre-primary school. The fear for negative effects of relatively large groups (over 13 children or even over 20 children per group) has led to a request for an evaluation of pre-primary education in 2007-2008.

Pre-primary pupils who live over five kilometres from school or whose school travel is too difficult, tiring or dangerous for their age are entitled to free school transportation since autumn 2004.

Next to preschool activities there are recreational morning and afternoon activities (including sports, practical skills, music, but can also be used for doing home work. The local authorities can decide on the provision at their discretion, and participation is voluntary for children. The aim is to support school and home education, to promote children's emotional and ethical growth and well-being and to offer opportunities for guided, recreational and safe activities outside school hours.

1.4 Basic education

The Finnish education system starts with nine-year basic education, called comprehensive school. The comprehensive school provides nine years of general compulsory education for 7 till 16-year-old children. In 2007 about 60.000 students were in compulsory education (Ministry of Education, 2007a).

Basic education is free nine-year education provided in comprehensive neighbourhood schools. The local/school curriculum is based on a national core curriculum and schools cooperate close with pupils' parents. Pupils are entitled to special-needs education if necessary. It is possible to continue basic education on a voluntary basis (for a tenth year to encourage participation in upper secondary education).

After completing basic education young people are issued a school-leaving certificate. This is no actual qualification but gives eligibility for all upper secondary education and training.

Basic education is co-financed by local authorities and government. The network of comprehensive schools covers the whole country with the majority of pupils attending medium-sized schools of 300-500 pupils. The smallest schools have fewer than ten pupils and the largest over 900 pupils. The language of instruction is mostly Finnish or Swedish.

The first six years of the comprehensive school (classes 1-6) form the "lower stage" and the following three (7-9) the "upper stage". Year-classes 1-6 are mainly taught by class teachers and year-classes 7-9 by specialised subject teachers. As a rule, all teachers have a Master's-level university degree and thus are highly qualified. Nearly all children complete their compulsory schooling.

Special-needs education

Pupils with minor learning or adjustment problems are entitled to remedial teaching alongside regular education. Pupils who cannot follow education due to a disability, illness, delayed development or some other reason can be admitted or transferred to special-needs education. Whenever possible, special-needs education is integrated into or given in a special class attached to regular schools. Each pupil with special learning needs has an individual teaching and learning plan.

1.5 Upper Secondary education

Post-compulsory upper secondary education comprises general and vocational education. Both forms usually take three years and qualify for higher education. About 55% of basic school-leavers opt for general upper secondary school and nearly 39% go directly to vocational education training and 3% take an extra year of basic education (Ministry of Education, 2007a).

General upper secondary education

General upper secondary school is based on specific courses with no specified year-classes and ends in a matriculation examination. It does not qualify for any occupation and most students afterwards continue in universities, polytechnics or vocational institutions.

The admission requirement for general upper secondary education is a school-leaving certificate from basic education. Students apply to general and vocational education in a joint application system. If the number of applicants exceeds the intake, the selection is based on students' school reports. The rejection rate is low.

Some upper secondary schools specialise in a certain subject, such as sports, art or music. Other schools may offer special sport and art lines. Some upper secondary schools end with an international examination. Education for the International Baccalaureate is given in 14 Finnish schools and education for the German *Reifeprüfung* in one school.

General upper secondary education is provided by local authorities, municipal consortia or organisations authorised by the Ministry of Education. The central government co-finances education with statutory government grants based on student numbers and unit costs per student. There are 435 upper secondary schools in Finland.

Vocational education and training

Next to general upper secondary education, students after basic education can decide to continue in vocational education and training (VET) which aims to improve the skills of the work force, to respond to the labour market needs work and to support lifelong learning. VET comprises initial vocational training and further and continuing training. VET is intended both for young people and for adults already active in working life. They can study for vocational qualifications and further and specialist qualifications, or for no qualification at all.

A total of 146 000 students attend initial vocational training every year. The biggest field of study is Technology and Transport (36%) followed by Business and Administration (19%), Health and Social Services (17%), Tourism, Catering and Home Economics (13%), Culture (7%), Natural Resources (6%) and Leisure and Physical Education (2%).

In further training provided in the Ministry of Education sector, the annual number of students is about 40,000.

In total there are 119 study programmes leading to 53 different vocational qualifications confirmed by the Ministry of Education. A qualification normally consists of 120 credits, which takes three years of full-time study, unless prior learning can be counted towards the qualification. At least 20 credits of on-the-job learning are required. The number of further and specialist qualifications, which are taken as competence-based qualifications, is 305.

A vocational qualification qualifies for polytechnic and university studies. The VET sector is highly steered by government who determines the structure, strategy, qualifications and core subjects. The National Board of Education designs the core curricula and sets the requirements of competence-based qualifications, which describe the aims and key content of the qualifications.

There are around 210 VET providers in Finland consisting of local authorities, municipal training consortia, foundations, registered associations and state companies. Their curricula are based on the national core curricula and official requirements. Next to regular teaching in vocational institutions VET is also offered in the form of apprenticeship training.

There are no tuition fees in initial VET. Students pay part of the costs, e.g. textbooks and personal tools, equipment and materials, which they keep after training. Meals are free. Modest fees may be charged for further vocational training. Entry requirements normally are a leaving certificate from basic education or an equivalent amount of studies. Students usually apply to VET through a national joint application system. The vocational qualification provides extensive basic skills for different professional occupations, focussing on vocational competencies, knowledge and skills and for entrepreneurship. The vocational qualification is 120 credits, including 90 credits of vocational subjects, 20 credits of general core subjects and 10 credits of elective studies. VET education can also be organised through on-the-job training, often a work-based module of 20 credits or more in which students demonstrate their competencies in the labour market. This very well fits with the development towards competence-based qualifications since 1994. This system also allows working-age adults to gain qualifications without necessarily attending formal training. It is possible to take competence-based vocational qualifications, further vocational qualifications and special vocational qualifications or only parts of them. The competence-based qualifications are set and supervised by field-specific education and training committees.

Finally some 9% of vocational students (15 years or over) each year choose apprenticeship training which is hands-on learning at a workplace complemented by theoretical studies. Each student is given a personal study plan based on a core curriculum and with about 70% to 80% of the training executed at the workplace under supervision of an on-the-job instructor.

Some 36,000 vocational qualifications are awarded annually, including 6,670 competence-based qualifications. The annual number of further and specialist qualifications is 12,450.

1.6 Adult Education and lifelong in Finland

Adult education policy is designed to provide a wide range of study opportunities for the adult population. Finland offers excellent conditions for lifelong learning. Different institutions arrange a great variety of courses and programmes for adults at all levels of formal education, and the provision of liberal adult education is extensive. Adult education also includes staff-development and other training provided or purchased by employers. Altogether adult education and training is provided by some 800 institutions with some of them being specialised adult education providers. Adult education is available within the official education system in:

- adult upper secondary schools
- vocational institutions and vocational adult training centres
- national and private vocational institutions
- polytechnics and universities

Next to that liberal adult education is provided by:

- adult education centres
- folk high schools
- summer universities
- study centres
- sports institutes

With the exception of further and specialist vocational qualifications, adult education and training leading to qualifications is provided free of charge. The government also subsidises other forms of education and training intended for adults in order to keep student fees at a reasonable level.

The annual number of participants in adult education and training is 1.7 million, which makes half of the working age population. This is a very high figure in international terms. The aim is to raise the participation rate in adult education and training to 60% by 2008 (Ministry of Education, 2008).

Adult education takes a more prominent role in the future due to the constant ageing of population and the growing multiculturalism. So it is the aim to motivate adults to study, to improve the learning-to-learn skills among the poorly educated and trained, and especially to ensure equity and equality. All in all to enhance the knowledge and skills of the adult population and to increase educational opportunities for groups that are under-represented in adult learning, and to promote equality and active citizenship. Adults can study for qualifications or parts of qualifications in open instruction (such as the open university and open polytechnic) and attend training preparing for competence-based qualifications. An important part of adult education consists of further and continuing training designed to upgrade and update competencies. The main providers of adult education and training in Finland, number of institutions are listed in table 1.

Table 1: Number of institutions by level and type of education

	Number of institutions
Liberal adult education	
Adult education centres	258
Folk high schools	91
Study centres	11
Summer universities	20
Physical education centres	14
General adult education	
Upper secondary schools for adults	54
Vocational training (upper secondary level)	
Initial vocational education providers	220
Specialised vocational institutions	54
Vocational adult education centres	45
Tertiary education	
Polytechnics	29
Universities	20

Adult education is overseen by the Adult Education Council which is an expert body assisting the Ministry of Education. Its members are appointed by the Council of State for a three-year term at a time. The Adult Education Council follows developments and research of Finnish and international adult education and training (Ministry of Education, 2008). In addition, the Council encourages co-operation between adult education and the rest of the education and training sector and society at large. The Council contributes to performance evaluation and development of adult education and training policy and adult education and training provision, issuing statements and taking initiatives.

Some key statistics

Some key statistics on Finnish are derived from the Annual Report of the Ministry of Education (2007a) to show the development of education in Finland:

- In 2004, the public education funding totalled € 9,776 million, amounting to 6.4% of Finland's GNP. For 2005, the estimate is € 10,042 million, which is 6.4% of the GNP.
- During 2006, 94% of Finnish municipalities provided morning and afternoon activities for comprehensive school pupils. In total, 41,575 first- and second-year pupils took part in these activities.
- The number of students who move on to secondary education directly after finishing their basic education has been steadily rising, reaching 95.1% in 2005. According to estimates, this positive trend has continued in 2006. The aim is to ensure that 96% of those who complete their compulsory education move on to secondary education by 2008.

- The dropout rate in vocational education has decreased. In 2005, the dropout rate in basic vocational education was 9.5% compared to 9.4% in 2004 and 10.2% in 2003. Dropout rates are expected to have decreased further during 2006.
- On average, polytechnic students complete their degrees in five years, and the average age of the graduates is 25. The estimated time of completion and age average have remained unchanged for the past three years.
- Of the new students admitted to university in 2006, 37.9% had taken the matriculation examination that same year, as compared to 36.5% in 2005 and 32.5% in 2004.

2 THE HIGHER EDUCATION SYSTEM

2.1 Introduction: basic structure of higher education in Finland

The Finnish tertiary education system comprises two parallel sectors: universities and polytechnics (Ministry of Education, 2005). There are ten multi-faculty institutions, three universities of technology, three schools of economics and business administration, and four art academies. University-level education is also provided in a military academy under the Ministry of Defence. Universities focus on scientific research and education and have the right to award doctorates. The first university degree, Bachelor's, can generally be attained in three years of full-time study (180–210 ECTS credits) and the higher, Master's degree (120–150 ECTS credits), in 2 years. There is an optional intermediate postgraduate degree of licentiate, which can be completed in two years of full-time study after the Master's degree. Full-time studies for a doctorate takes approximately four years following the Master's degree. The Finnish polytechnic system was set up over a period of ten years, which comprised a pilot phase and a subsequent stage in which the operations were given their final form. In the reform, the vocational colleges joined forces and formed larger entities, upgrading their education to the tertiary level. The first polytechnics gained a permanent status in August 1996 and the last five as recently as August 2000. A polytechnic degree requires 3.5 - 4.5 years of full-time study. The requirement for polytechnic a Master's programmes is a polytechnic degree or equivalent, plus a minimum of three years of work experience in the field concerned.

Strategies and policies of the Ministry of Education

The Ministry of Education Strategy 2015 addresses future challenges in the sector and its operational environment, Finnish society and the international environment (Ministry of Education, 2008). It takes a long-term view of the objectives and the means whereby the vision, the operational idea and values will be realised. The strategy outlines future development in the Ministry of Education sector. The key objectives for the sector are:

- to secure equal opportunity in education and culture
- to promote intellectual growth and learning
- to promote participation and inclusion
- to boost the educational, cultural and economic competitiveness of Finnish society
- to ensure Finland's influence in international contexts
- to improve the performance of the sector.

The more detailed sector-specific strategies and development programmes are informed by the Ministry of Education Strategy. The aims and policies defined in them are put into practice by means of action programmes and projects, which are often carried out in cooperation with other administrative sectors and stakeholders.

The Bologna process in Finland

The Finnish universities initially took a fairly negative view of the Bologna Declaration whereas the polytechnics took a positive perspective from the outset. Now all higher education institutions actively prepared their participation in the creation of the European Higher Education Area. Another important means is to strengthen quality assurance in universities and polytechnics. The new two-cycle degree system has been adopted by Finnish institutions in August 2005. Both universities and polytechnics have adopted the Diploma Supplement. It is a document jointly designed by the EU, the Council of Europe and UNESCO to provide information about the studies completed by the student, the status of the degree and the qualification provided by the degree for further studies and for jobs. In Finland the universities and polytechnics have a statutory duty to issue a Diploma Supplement to the student on request. Finnish higher education institutions use the ECTS system in international student mobility schemes. Also the degree structures are evolving in line with the Bologna Declaration, and the Bachelor-Master structure is becoming the prevalent model. The Finnish Higher Education Evaluation Council has been very active in quality assurance cooperation

2.2 Pathways to higher education

The higher education system comprises universities and polytechnics, in which the admission requirement is a secondary general or vocational diploma. The ground rule is that the universities, their faculties or departments select their own students based on matriculation examination grades, the school-leaving certificate and/or entrance examinations (Ministry of Education, 2005). For some ten years, the universities and the Ministry of Education have agreed on joint targets to speed up transition from secondary to higher education. Finland's university admissions system is unique in Europe. It is highly decentralized in contrast to many other countries where the system is more centralized and based mainly on grades in school certificates. In Finland admission is based on entrance examinations, which in majority of cases differ from one university to another. The system in general is considered to be heavy and expensive. The Ministry of Education has permanently pushed universities to collaborate, with a relative small success. One reason for the growth of various forms of entrance examination has been the belief – supported by some research – that school success does not necessarily lead to success in higher education. Separate examinations have also served as a part of "second chance" policies, especially in those fields where the number of adult applicants is relative high. Also the interests of the applicants themselves have also geared an increasing number of exams. Due to the persistent over-demand for higher education, and the mismatch of the educational preferences of secondary school leavers and the available places in higher education, an enormous pool of potential applicants has accumulated during decades. At the moment the annual number of applicants is three times the size of the matriculated cohort. Every year only a half of these gain entry to higher or vocational education,

while the other half remains in the backlog, waiting for view of the type of entrance examination used in Finland. In spite of many delays the great majority of students find their learning place within three years.

In addition to the general Finnish entrance qualifications, students with foreign qualifications can also enter Finnish higher education. The recognition of a foreign degree means a decision by Finnish authorities regarding the qualification it provides in the labour market or the eligibility it provides for further education in Finland. It is a general international principle that the receiving country determines the level of a foreign degree and the professional qualifications it provides. In Finland, the national contact point for the recognition of degrees is the National Board of Education, which provides information about the system and procedures involved in recognition. The recognition decision is made by this board on a case-by-case basis. A fee is charged for the decision. Recognition entails that the educational institution and the diplomas it awards belong to the official education system in the country concerned.

2.3 The polytechnic sector

The structure of higher vocational education has been reformed. New polytechnics the so-called *ammattikorkeakoulu* (AMK institutions), were developed from former colleges of higher vocational education which covered a wide variety of vocational diplomas of varying lengths and levels. These used to be placed somewhere between secondary and higher education which made the Finnish higher vocational education difficult to place in an international perspective. The new Finnish polytechnic system was set up over a period of ten years, which comprised a pilot phase and a subsequent stage in which the operations were given their final form. In the reform, the vocational colleges joined forces and formed larger entities, upgrading their education to the tertiary level. The first polytechnics gained a permanent status in August 1996 and the last five as recently as August 2000.

Polytechnics are multi-field regional institutions focusing on contacts with working life and on regional development. Polytechnics are professionally oriented higher education institutions (HEIs). In addition to their educational role, polytechnics conduct applied R&D which serves teaching and the work life. There are 29 polytechnics operating under the Ministry of Education. Moreover, there is Åland Polytechnic (Högskolan på Åland) under the jurisdiction of the self-governing Åland Islands and the Police College of Finland, which operates under the Ministry of the Interior. The polytechnic network covers the entire country, catering for the speakers of both national languages (Finnish and Swedish). Polytechnic degrees are Bachelor-level tertiary degrees with a professional emphasis and take 3.5 to 4.5 years to complete. The main aim of the polytechnic degree programmes is to provide professional competence. The largest fields are engineering, business and health care. The degrees vary from 180 to 240 ECTS credits, which correspond to three or four years of study, depending on the field. All the training programmes include obligatory

work practice. The newest part of the system are post-experience graduate degrees with the duration of 3–5 years. The polytechnics gained a permanent status in legislation passed in 2003. According to the Polytechnics Act, these institutes provide professional education, support professional development, conduct applied R&D which supports regional development, and offer adult education.

The total number of young and mature polytechnic students is 130,000. Polytechnics award over 20,000 polytechnic degrees and 200 polytechnic Master's degrees annually. The system of higher degrees was put in place after a trial period in 2005 and the number of polytechnic Master's programmes is expected to grow in the coming years.

Next to the regular polytechnics there is a virtual polytechnic, The Finnish Virtual Polytechnic which is a network of all the polytechnics in Finland, which develops, produces and offers education for flexible studies using modern ICT. Finally the higher education sector is supplemented by *university centres* in areas which have no university of their own. A university centre is a networked university combining the provision of several, often regional higher education institutions. The partners forming the centre are often universities and polytechnics, but may also include local authorities and the regional council.

A recent development is that a number of polytechnics have mergers in mind (Dobson, 2008a). In fact, some mergers have already occurred. Several polytechnics have announced mergers such as Haaga and Helia, which merged into Haaga-Helia in 2007. In addition, many of Finland's polytechnics have taken the unprecedented step of describing themselves in English as 'universities of applied sciences'. This is a contested idea, which particularly stirred the debate among university officials as they claim that polytechnics want to look like real universities while they are also not referred to as universities in neither Swedish nor Finnish. So far the Ministry advises the polytechnics to call themselves polytechnics, but still some remain calling themselves university of applied science.

Administration

Polytechnics are municipal or private institutions, which are authorised by the government Ministry of Education (2008). The authorisation determines their educational mission, fields of education, student numbers and location. Polytechnics have autonomy in their internal affairs.

The government and local authorities share the cost of polytechnics. Government allocates resources in the form of core funding, which is based on unit costs per student, project funding and performance-based funding. Polytechnics also have external sources of funding.

In addition project funding provided by Ministry of Education is intended for important development targets, such as R&D, virtual polytechnic provision and networking, in which polytechnics jointly develop their activities, and for regional development projects.

The development plan for education and research, adopted by the government every four years, outlines education and research policy for the years to come. In addition to legislation, the Government Programme and the development plan, polytechnic provision is governed by performance agreements which are agreed upon between the Ministry of Education, the polytechnics and their maintaining organisations for periods of three-years. These performance agreements include target results and their monitoring and on major national development projects. Intakes and project funding are determined annually.

Polytechnic R&D

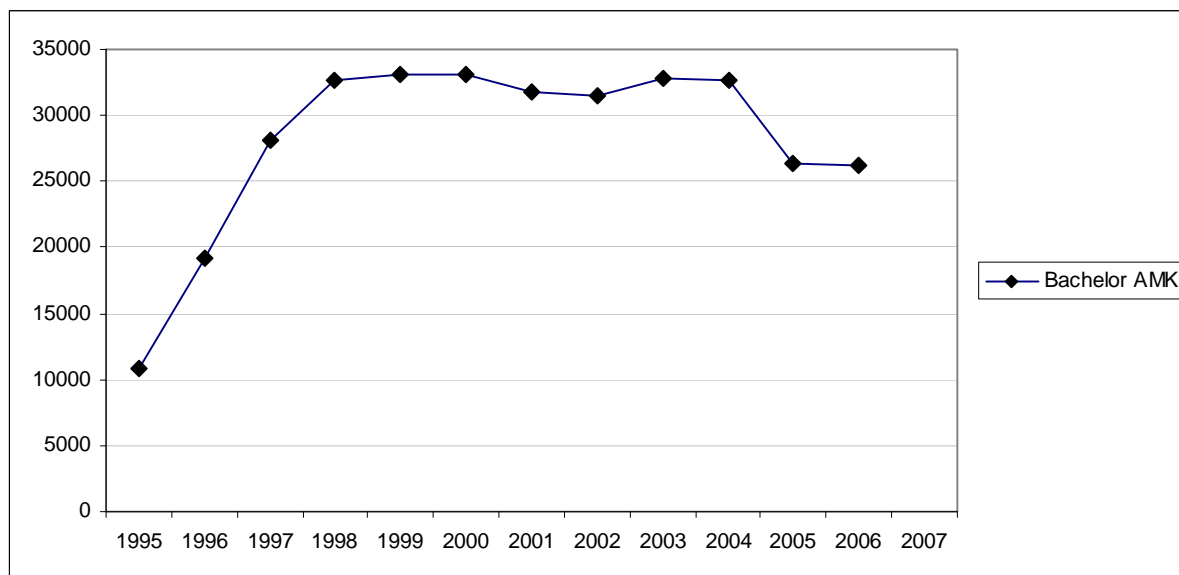
Polytechnic R&D has expanded in recent years. Polytechnics mostly conduct R&D geared to the needs of business and industry and usually linked to the structure and development of the regional economy. Current development targets are interaction between education and R&D, staff development and networking between polytechnics, universities and research institutes (Ministry of Education, 2008). The most important source of funding is the EU Structural Funds. The links with the labour market means that polytechnics develop new or improved products, services and production machinery, devices and methods for the needs of their regions.

2.3.1 Access to polytechnics

The general requirement for admission to AMK institutions, is general or vocational upper secondary education. In other words, the following applicants qualify for AMK studies: those who have taken the Matriculation examination, or completed upper secondary school, or have a vocational basic qualification (or post-secondary qualification), or a corresponding international or foreign qualification. Students apply for AMK institutions through the joint national application system. The requirement for Master's studies in polytechnics is a Bachelors' level polytechnic degree and at least three years of work experience.

The permanent AMK institutions determine themselves the principles of student selection. However, as to temporary experimental AMKs and post-secondary level education, the Ministry of Education has the decision-making power. Student selection is based on school achievement, work experience and in many cases, entrance examinations are arranged. Students apply for polytechnic studies in a national application system. The polytechnics determine the admission criteria and arrange student selection and entrance examination at their discretion. Nearly 90% of applications are submitted electronically.

In 2006 the number of new students in basic polytechnic education was 32370 and in postgraduate polytechnic education 1380. The latter was a strong growth compared to the previous years as the postgraduate courses just started recently (Ministry of Education 2007).

Figure 2.1: New entrants in Finnish AMK

2.3.2 Enrolment

As stated above polytechnics offer various degree programmes, like:

- education for polytechnic degrees
- education for polytechnic master's degrees
- professional specialisation and other adult education
- open polytechnic education
- vocational teacher training

These programmes are offered in a range of disciplinary fields:

- Humanities and Education
- Culture
- Social sciences, business and administration
- Natural resources and the environment
- Technology, communication and transport
- Natural sciences
- Social services, health and sport
- Tourism, catering and domestic services

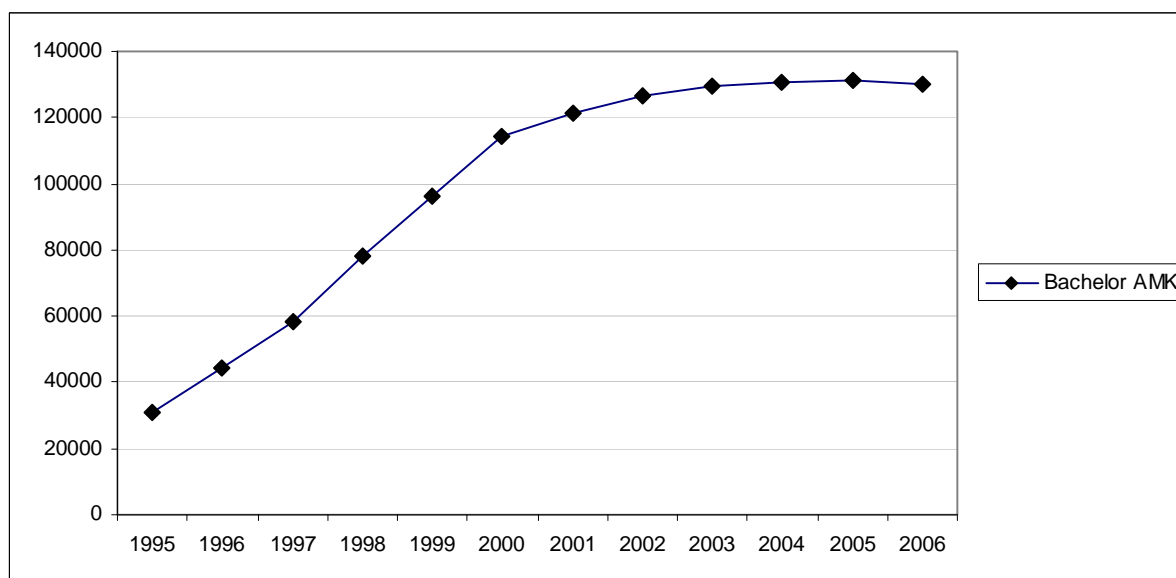
Degree studies give a higher education qualification and practical professional skills. They comprise core and professional studies, elective studies and a final project. All degree studies include practical on-the-job learning. There are no tuition fees in degree education, and the students can apply for financial aid.

The extent of polytechnic degree studies is generally 210–240 study points (ECTS), which means 3.5 - 4 years of full-time study. This education is arranged as degree programmes. The polytechnic Master's, which is 60-90 study points and takes 1.5-2 years, is equivalent to a university Master's in the labour market.

Each student has a personal study plan, which facilitates student guidance and the monitoring of progress in studies. Polytechnics also arrange adult education and open education geared to maintain and upgrade competencies. The teaching arrangements in adult education are flexible and enable mature students to work alongside their studies. Some 20% of polytechnic students are mature students.

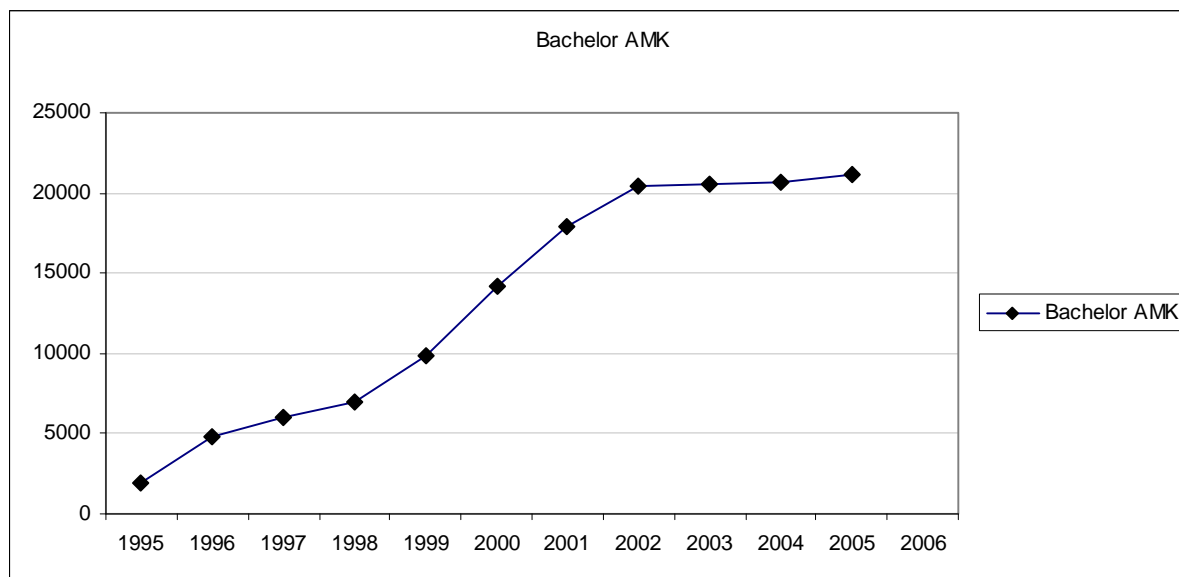
The drop-out rates in polytechnics are relatively low with 6.4%, in university education this is even lower with 4.7%, (Ministry of Education, 2007a). In general the drop-out rates among females are lower than among males.

Figure 2.2: Enrolment in AMK



2.3.3 Outflow

In 2006 the number of graduates in basic polytechnic education was 20770, almost 400 less than the year before. In graduate education the outflow of graduates was 150 which is envisaged to substantially grow as a result of the recent introduction of these programs.

Figure 2.3: Graduates in AMK

2.3.4 Education and the labour market

Finland has a fairly long tradition in the anticipation of labour and educational needs. In the 1970s, educational foresight was organised into a Planning Secretariat of the Ministry of Education and a Consultative Council for Educational Planning attached to the Ministry. From the outset, this organisation was charged with drawing up proposals for the supply of education and training by levels and fields of education in the longer term. The set-up changed in the early 1990s when neo-liberal political ideologies led to a wide-scale delegation of education policy decisions to the local level. In that connection, quantitative planning was devolved to the extreme. The rationale was that education providers have sufficient information to decide their own supply. As such state control was no longer needed to the former extent. The Planning Secretariat and the Consultative Council were abolished. But the experiences with this decentralisation were not altogether positive as regards the quantity of supply. However, this is not the main reason why educational foresight and more planned supply of education are gaining more ground again. The reason is primarily the foreseeable demographic development. The population is ageing and the large post-war age groups will start retiring en masse towards the end of this decade. The young age groups entering the labour market are considerably smaller than the baby-boom generation. From 2004 onwards labour force entrance will be smaller than exits. From 2010 onwards the annual labour need is estimated to be 10,000 larger than the entrant labour force (Ministry of Education, 2005). This was the rationale for a large-scale foresight undertaken in connection with the preparation of the Development Plan for Education and Research 2003–2008. The aim was to set targets for education and training for 2008.

Foresight and quantitative planning of educational supply up to 2008

The number of tertiary graduates entering the labour market in Finland is regulated by means of a medium-term Development Plan for Education and Research, which sets quantitative targets based on long-term forecasts on the need for educated workforce (Ministry of Education, 2005). The forecasts are two-fold. The future need for new entrants is estimated on the basis of the outflow from the labour market mainly due to the age structure of the population and the resulting retirement rate. The second part concerns changes in the workforce as a whole and in selected occupational groups. This part is based on successive phases of estimations of economic growth and workforce, changes in the industrial branches and occupational groups. The occupational figures are transformed into educational concepts with the help of occupation-education matrices.

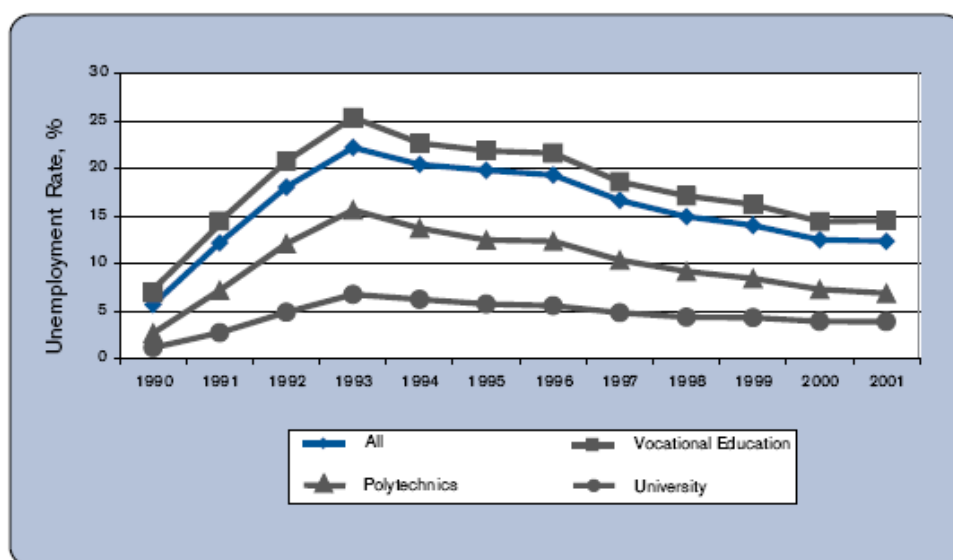
The relationship between labour market demand and the supply of education at all levels of education is followed on a fairly regular basis. Monthly data on employment and unemployment is available by different levels and fields of education, and detailed and comprehensive data on education and jobs can be obtained from the census conducted every five years. Feedback from the labour market also comes through information provided by the polytechnics, the universities, employer and employee organisations and different cooperative and advisory bodies set up by the government. The supply of graduates cannot match labour market demand exactly, firstly because the forecasts can give only a rough picture of future developments and secondly because short-term fluctuations are not predictable and therefore education and training, which may take 5–10 years, cannot be adapted to rapid labour market changes.

On the basis of a complicated calculation and monitoring method the entrant targets for vocational training, polytechnics and universities were calculated in youth education by fields of education for the year 2008. These figures were sent on a wide comment round together with the draft Development Plan for Education and Research. The final figures were adjusted according to the statements received, within political realities. The Ministry of Education approved the indicative regional targets for 2008 in May 2004. The targets for each HEI are agreed by the Ministry of Education and the polytechnic/university in a performance agreement, on the basis of which the HEI determines its intake for each field of education. The performance agreement is concluded for a three-year period and certain parts of it are reviewed each year. The current agreement period is 2007–2009. The next development plan which sets targets for 2012 will put more attention to regional targets. The Ministry of Labour will also initiate a Labour 2025 project.

Targets for tertiary education

The total number of post-compulsory certificates and diplomas awarded annually in Finland is 110,000–120,000, two thirds of which are upper secondary qualifications and one third tertiary degrees. The number of polytechnic degrees is 18,000 and university degrees 11,500. The number of graduates is 900,000, which is one fourth of the total working-age (15–64 years) population. The labour market situation for the graduate workforce has been in the 2000s quite reasonable (Ministry of Education, 2005). The unemployment rate in 2001 was 6%, as compared with the overall employment rate of 12% and with 19% among those with no post-compulsory qualifications. The annual income of the tertiary graduates is € 36,000, whereas the general level is € 27,000. University graduates earn € 45,000 a year. The income of polytechnic graduates is lower than that of those with higher vocational qualifications. One explanation is that since the polytechnic system is fairly recent, the graduates are still quite young and have not yet fully established themselves in the labour market. The deep economic recession of the early 1990s is clearly reflected in the graduate employment situation. The overall unemployment rate was at an all-time high of 23% in 1993. University graduates and postgraduate degree holders did fairly well during the economic crisis. Polytechnic graduates and those with equivalent qualifications were not as fortunate – at its worst their unemployment rate was 15%

Figure 2.4: Unemployment rate of tertiary graduates (1990-2001)



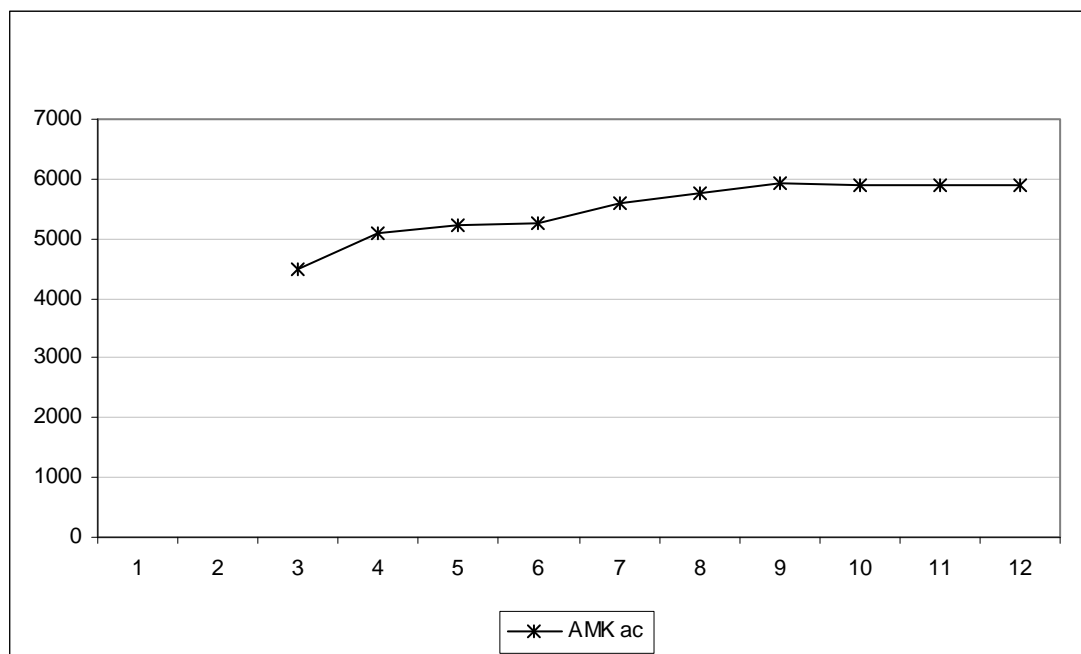
Source: Ministry of Education, 2005

These data show that polytechnic graduates have fairly good labour market prospects.

2.3.5 Personnel

Most polytechnic teachers are either head teachers/senior teachers or lecturers of whom 26.4% were PhDs and 38% licentiates (Ministry of Education, 2005). Most of the regular lecturers had Master's degrees; 2% were PhDs and 6% licentiates. The main emphasis in the work of polytechnic teachers is on teaching and guiding students. Research is gradually developed at Finnish polytechnics. A head teacher should preferably have an applicable doctorate and practical experience in his field. The head teacher's special responsibilities include the enhancement of instruction and study programmes, supervision of degree work, and research development and surveys related to polytechnics. Lecturers are expected to have an applicable higher academic degree and practical experience in the field. Only officially qualified teachers obtain tenure. The non-teaching staff in polytechnics amounted to 44% (4,600 persons). They mostly work in general, personnel and educational administration and in library and information services.

Figure 2.5: Academic staff in AMK



2.4 The university sector

The Finnish higher education system next to the polytechnics comprises universities. Finland's first university was founded in Turku in 1640 (Eurydice, 2007/08). At the beginning of the 19th century, it was moved to Helsinki and it remained Finland's only institution of higher education until 1908, when the present Helsinki University of Technology was founded. Between 1910 and 1920, a Finnish-language and a Swedish-language university were both established in Turku. The new needs of business and industry were answered in the 1950's and 1960s with the creation of institutions specialising in the fields of economics and technology. Only the 1960s and 1970s witnessed rapid growth and regional expansion of the higher education system. The pressure to expand educational opportunities was fuelled by rapid economic growth, an increase in the number of people with general upper secondary education, high demand for academically educated labour in working life as well as demand for educational equality. Other important educational decisions were also being made: all teacher training was incorporated into universities and education in the arts was introduced at university level.

Under the first Higher Education Development Act (1966 to 1986) steady growth of resources for higher education were ensured, increasing the number of study places, in particular in technology, natural sciences and medicine, as well as increasing regional equality and international compatibility of the system. Also the 1987 Higher Education Development Act guaranteed universities a significant increase in resources for the following period and laid ground for internal reform of the higher education system as well as shifting towards performance based government steering of the higher education system.

The mission of universities is to conduct scientific research and provide undergraduate and postgraduate education based on it (Ministry of Education, 2008). Under the Universities Act, universities must promote free research and scientific and artistic education, provide higher education based on research and educate students to serve their country and humanity. In carrying out this mission, universities must interact with the surrounding society and strengthen the impact of research findings and artistic activities in society.

There are 20 universities in the Ministry of Education sector: ten multidisciplinary universities, three schools of economics and business administration, three universities of technology, and four art academies. All the 20 universities in Finland are state-owned and mostly financed from the state budget. Their operations are built on the freedom of education and research and university autonomy. Universities confer Bachelor's and Master's degrees, and postgraduate licentiate and doctoral degrees. Universities work in cooperation with the suspending society and promote the social impact of research findings. There are universities in 11 different cities and towns, which offer education in altogether 23 localities in Finland. The higher education system is being developed as an internationally competitive entity capable of responding flexibly to national and regional needs.

In an administrative sense university education comes under the Division for Higher Education and Science within the Department for Education and Science Policy. Next to the regular universities there is a National Defence College which provides higher education in the military field and falls under the authority of the Ministry of Defence. The university field is supplemented by university centres in areas with no university of their own. The centres gather university activity in the region. Their cooperation partners often include regional polytechnics, municipalities and the regional council (Ministry of Education, 2008). These university networks are mostly cooperation bodies for research and education units working in the same field. There are such networks for instance in the fields of communication, health sciences and women studies. Finally, the Finnish Virtual University is a consortium established by all the universities in Finland to promote and develop the use of ICT in studies, teaching and administration. The virtual university services, such as jointly provided study modules and electronic transaction services, are intended for all the universities and accessible at www.virtualuniversity.fi.

In 2008 there seems to be a big wave of merger initiatives (Dobson, 2008b). First are several regional mergers: the universities of Joensuu (about 8,000 students) and Kuopio (6,000) will merge to form East Finland University in 2010; the University of Jyväskylä (home of Finland's synchrotron), the University of Tampere and the Tampere University of Technology will become the Central Finland University (with more than 41,000 students); and the University of Turku and the Turku School of Economics and Business Administration are also to merge. Second, various other arrangements have been agreed to or are being discussed in the Helsinki region. The Swedish-language business university, Svenska Handelshögskolan, will in future "cooperate more closely" with the University of Helsinki. There is also a merger or close cooperation envisaged between the three creative arts universities. The third and perhaps most radical change aims to see the creation of a 'world class university' – an 'innovative university' which is to be formed by a merger between the Helsinki University of Technology (HUT), the Helsinki School of Economics and Business Administration and the University of Art and Design. It will have about 21,000 students and will comprise three of Finland's strategically important fields: technology, business and art know-how. The big issues in the debate are that the "Innovative University" aims at getting higher at the international ranking lists, but also that industry and the government allocate additional resources to it. The *Innovative University* is envisaged to become a "foundation". This change of entity will allow the Innovative University to attract more external funding, become more autonomous and to own its own premises.

Degrees and programmes

In August 2005 a two-tier degree structure was introduced which divided the former Master's level undergraduate degree programmes into separate Bachelor's (Finnish: *kandidaatin tutkinto*, Swedish: *kandidatexamen*) and Master's (Finnish: *maisterin tutkinto*, Swedish: *magisterexamen*) degrees. Previously Bachelor-level degrees were

not compulsory, and the majority of students went directly to Master's courses. As a result, universities now offer lower (Bachelors) and higher (Masters) degrees and scientific or artistic postgraduate degrees, which are the licentiate and the doctorate (Ministry of Education, 2008). It is also possible to study specialist postgraduate degrees in the medical fields. In the two-cycle degree system students first complete the Bachelors degree, after which they may go for the higher, Masters degree. As a rule, the own bachelor students are admitted to study for the higher degree. Universities also arrange separate Master programmes with separate student selection, to which the entry requirement is a Bachelor's level degree or corresponding studies.

Studies are quantified according to the ECTS credits. One year of full-time study corresponds to 60 credits. The Bachelors level degree is 180 credits and takes three years. The Master's degree is 120 credits, which means two years of full-time study on top of the lower degree. In some fields, such as Medicine, the degrees are more extensive and take longer to complete.

A system of personal study plans for each individual student facilitates the planning of studies and the monitoring of progress in studies and support student guidance and counselling.

University postgraduate education aims at a doctoral degree. In addition to the required studies, doctoral students prepare a dissertation, which they defend in public. The requirement for postgraduate studies is a Master or corresponding degree.

Universities select their students independently and entrance examinations are an important part of the selection process. An admitted student may only accept one student place in degree education in a given academic year. In the 2008/2009 academic year a new student selection system is developed with simpler procedures by means of a joint universities application system.

Universities also offer fee-charging continuing education and open university instruction, which do not lead to qualifications but can be included in a undergraduate or postgraduate degree.

University education is divided into twenty basic fields of study, each of which have their own decrees pertaining to degrees: theology, the humanities, law, social sciences, economics and business administration, psychology, educational sciences, natural sciences, agriculture and forestry, sport sciences, engineering and architecture, medicine, dentistry, health care, veterinary medicine, pharmacy, music, art and design, theatre and dance as well as fine arts.

Studies have been organised into study units, the extent of which varies and which can include several types of work: lectures and other guided instruction, exercises or other independent work, set-book examinations, seminars and so on. In most fields, the study units form larger modules of three levels: basic or introductory studies, intermediate (subject) studies and advanced studies (Eurydice, 2007/08).

2.4.1 Access

The Finnish matriculation examination provides general eligibility for university education (Eyrydice, 2007/08). The same eligibility is also provided by the International Baccalaureate (IB), European Baccalaureate (EB) and Reifeprüfung examinations. In addition, those with a Finnish polytechnic degree, post-secondary level vocational qualification or at least a three-year vocational qualification also have general eligibility for university education. Universities may also admit applicants, who are otherwise considered by the university to have the necessary knowledge and skills to complete the studies. Most new students have completed the matriculation examination. People who received their schooling in another country may be admitted if their qualification gives eligibility for corresponding university studies in that country. Finland has ratified the Convention on the Recognition of Qualifications concerning Higher Education of the European Council and UNESCO/CEPES (so called Lisbon Convention) and signed the Nordic Convention on Admission to Universities.

By virtue of the Universities Act (645/1997), an applicant may only accept one study place leading to a higher education degree in each academic year. A study place leading to a higher education degree means a study place in a programme leading to a lower or higher academic degree at universities or a study place on a programme leading to a polytechnic degree. Universities select their students independently and they decide on the field-specific student intake according to the agreed target number of degrees. The numbers are determined in performance negotiations between the Ministry of Education and the universities. There is restricted entry, 'numerus clausus', to all fields of study. As there are many more applicants than there are places available, universities use different kinds of student admission criteria. Student admission may be based on:

- the grades attained in the matriculation certificate (and in the general upper secondary school (Finnish: lukio, Swedish: gymnasium) leaving certificate) together with the results of an entrance test, which is the most common procedure;
- the results of an entrance test only; or
- the grades attained in the matriculation certificate and in the upper secondary school leaving
- certificate only.

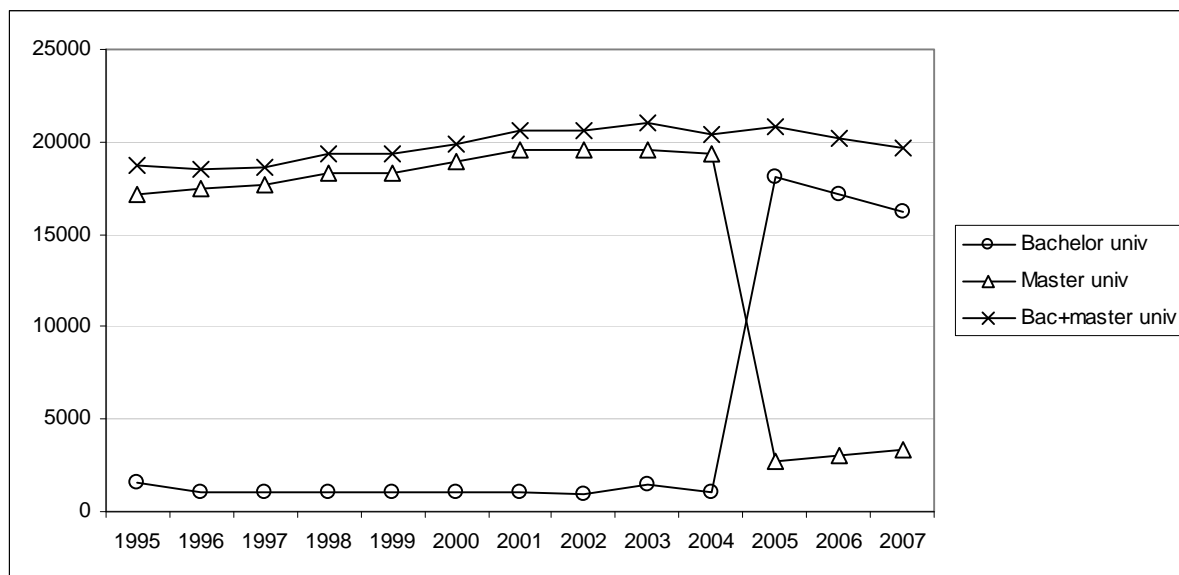
In addition, some fields may place additional emphasis on work experience, studies, practical training, etc. Entrance tests are designed by the university, faculty or department in question to assess the applicants' motivation, suitability and aptitude in the field concerned. The tests are often based on required reading. There may also be interviews or material-based examinations, and students may be required to demonstrate their skills (for example, at art academies), etc. Students without the certificate of matriculation are usually selected on the basis of the entrance test.

Universities co-operate in organising the student admission to varying degrees. The field of engineering and architecture applies a joint selection system, i.e. a joint entrance examination, to three universities of technology and two faculties of technology in multidisciplinary universities. Each of these universities uses the same selection criteria and the same application form. There is also cooperation between universities in, among others, biology, languages, class teacher and kindergarten teacher education, medicine and economics. In 2008 a new joint higher education application system is being developed.

The present legislation allows for flexible pathways leading to university education. Thus a student is eligible for university studies if the university acknowledges that he/she has sufficient knowledge and competences irrespective of his/her previous education. The legislation also allows for flexibility in recognising and validating prior learning. Students can, on the decision of the university, be accredited for studies at a higher or other education institution in Finland or abroad. This also applies to learning acquired outside the formal education system. The initiative for the recognition of prior learning must come from the student and he/she also has the responsibility of providing evidence to support the request. Individual study plans are used increasingly. The accreditation of prior learning in conjunction with these is based on the discussions between teacher and student. According to a survey learning acquired outside formal education is not recognised and accredited very much. Most commonly practical training is compensated by work experience.

Just over one in three new students admitted to university in 2006 had taken the matriculation examination that same year (Ministry of Education, 2006). The average age of the new university students was 21. The new application system being developed should help to reduce the starting age of new entrants by making the selection of students more efficient.

Figure 2.6 provides an overview on the number of new entrants in Finnish universities..

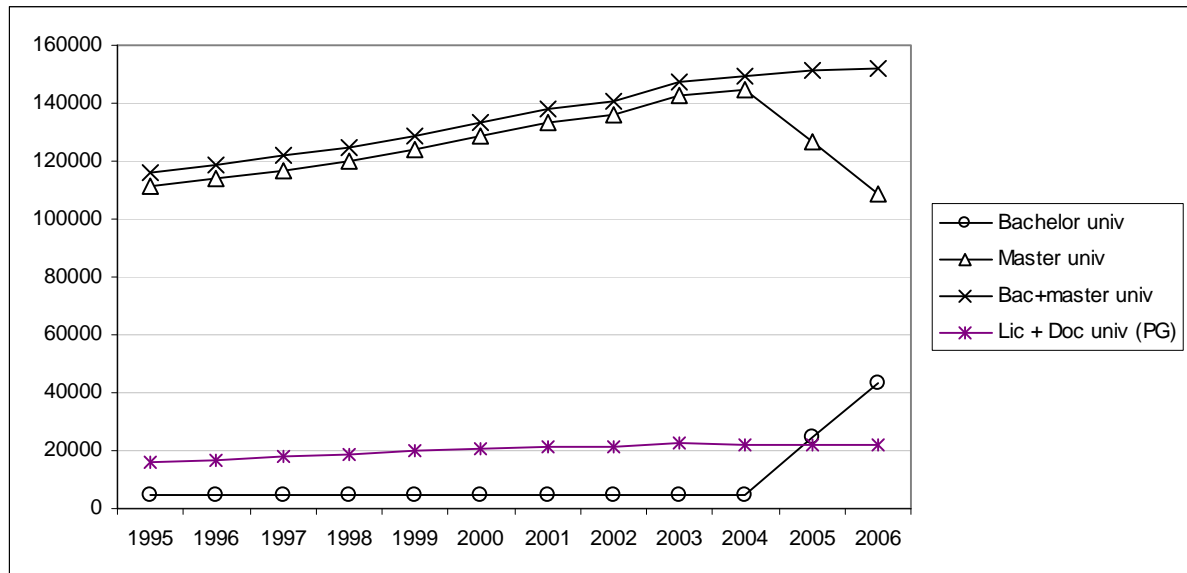
Figure 2.6: New entrants in Finnish universities

2.4.2 Enrolment

Participation in higher education in Finland is rather high. According to Statistics Finland (2008), a total of 176,555 students attended university education leading to a degree in 2006. The total participation rate in higher education is 73% of the relevant age group of which 43% is in university education and 30% in the polytechnics (OECD, 2007).

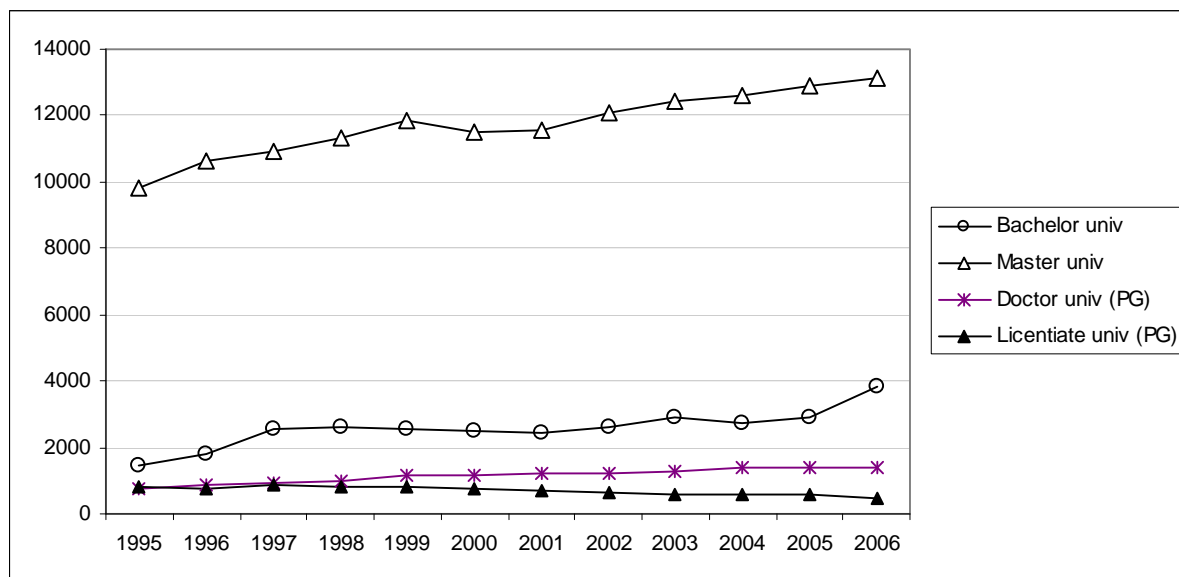
As to the composition of the student body, in 2006 the highest numbers of students were studying in the fields of science and technology, natural sciences and humanities. Of all students, 24 per cent were studying for a lower tertiary degree and 62 for a higher tertiary degree. A total of 14% of all students were studying at the doctorate level of attending specialist training of doctors. The proportion of women of all students attending education leading to a degree was 54% and their proportion of new students was 57%. In relative terms, the highest number of women studied in the field of health sciences and the lowest in the field of science and technology. In 2006 the number of foreign students attending university education leading to a degree was 5,400, which is 500 more than in 2005. Women made up 42% of all foreign students. Examined by continent, the highest number of foreign students came from Europe and Asia. The highest numbers of foreign students were studying in the fields of science and technology, humanities and natural sciences.

The drop-out rates in university education are relatively low with 4.7%, in polytechnics this is 6.4% (Ministry of Education, 2007a). In general the drop-out rates among females are lower than among males.

Figure 2.7: Enrolment in Finnish universities

2.4.3 Outflow

A total of 19,400 university degrees were attained in Finland in 2006 (Ministry of Education, 2007b). This is 200 more than in the year before. Of the total number, 3,800 were lower and 13,100 higher university level degrees. Completed degrees at the doctorate level numbered 1,400. Women completed 62 per cent of all university degrees. Examined by field of education, the largest numbers of degrees were attained in humanities and in technology. Women completed 80 per cent of all degrees in humanities whereas men attained 77 per cent of all degrees in science and technology. Foreign students completed 640 degrees, of which 26 per cent were at the doctorate level. Foreign students attained the largest numbers of degrees in science and technology, and in natural sciences. Women attained 36 per cent of all degrees completed by foreign students.

Figure 2.8: Graduates in Finnish universities

2.4.4 Education - Labour market

Finland has a fairly long tradition in the anticipation of labour and educational needs (Ministry of Education, 2005). As described in section 2.3.4 (see there for an extended description), Finland has had a strong educational planning since the 1970s. A Planning Secretariat of the Ministry of Education and a Consultative Council for Educational Planning were regulating student places in accordance with foresight on the labour market needs. In the 1990s this central mode was replaced with more decentralised regulations through the local authorities.

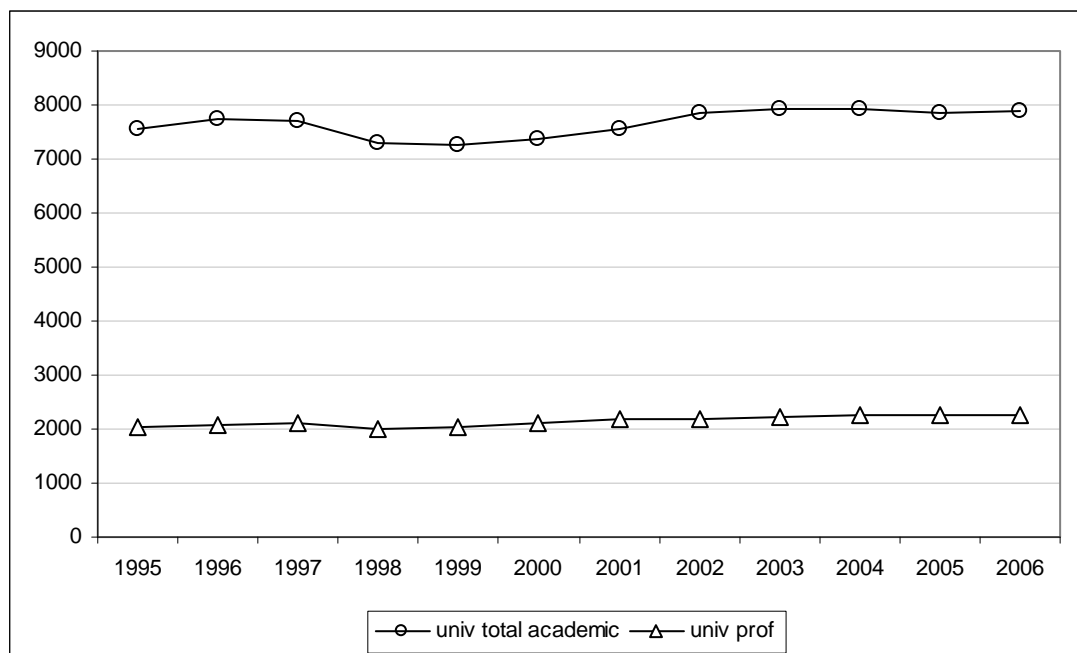
In a statistical sense, from 2004 onwards labour force entrance will be smaller than exits. From 2010 onwards the annual labour need is estimated to be 10,000 larger than the entrant labour force (Ministry of Education, 2005). This was the rationale for a large-scale foresight undertaken in connection with the preparation of the Development Plan for Education and Research 2003–2008. The aim was to set targets for education and training for 2008. So the number of tertiary graduates entering the labour market in Finland is regulated by means of a medium-term Development Plan for Education and Research, which sets quantitative targets based on long-term forecasts on the need for educated workforce (Ministry of Education, 2005).

The relationship between labour market demand and the supply of education at all levels of education is followed on a fairly regular basis. On the basis of a complicated calculation and monitoring method the entrant targets for vocational training, polytechnics and universities are calculated and sent on a wide comment round together with the draft Development Plan for Education and Research. The final figures then are adjusted according to the statements received, within political realities and the Ministry of Education approves the indicative regional targets. The targets for each HEI are agreed by the Ministry of Education and the polytechnic/university in a performance agreement, on the basis of which the HEI determines its intake for each field of education. All of these leads to a rough number of around 110,000–120,000 post-compulsory certificates and diplomas awarded annually in Finland. Of these, the number of polytechnic degrees is 18,000 and university degrees around 11,500. The number of graduates in the labour force is around 900,000, which is one fourth of the total working-age (15–64 years) population. The labour market situation for the graduate workforce has been in the 2000s quite reasonable (Ministry of Education, 2005, see section 2.3.4).

2.4.5 Personnel

The total number of staff in universities is rather stable, though growing slightly due to increased contract work over the last decade. Total teaching staff is around 8,400, of which about 530 are on external funding. In terms of research staff the ratios are completely different with 1,200 researchers on public budget funding and 5,100 on contract funds. Then universities have 9,600 other staff on public budget funding and 4,500 on external funds. Nearly 60% of lecturers, 22% of professors and 50% of assistants are women (Ministry of Education, 2005). The student-teacher ratio in universities is 22:1, and 2.7 new students are admitted per teacher. There are 1.6 Master's degrees awarded per teacher and 0.6 doctorates per professor.

In addition to these broad categories of staff in Finnish universities students at graduate schools are also regarded as staff. There are 1750 of such graduate school students of whom 570 are appointed with external funds.

Figure 2.9: Academic staff at Finnish universities

In terms of the organisation of staffing policy, it can be mentioned that universities appoint their own teachers (Ministry of Education, 2005). The general qualification requirement is scientific competence. Recently more attention has been paid to teaching skills as well. Teachers' duties are teaching and research. The job description is agreed within the annual work time plan. The aim has been that the salary level is corresponding across universities. This is why the salary structure and salaries are negotiated as part of the state collective bargaining system.

Another aim is to review the viability of the post structure and to make necessary changes. The tertiary education system is increasingly required to cooperate with business and industry and with other stakeholders. Therefore the major dynamic element in university personnel in recent years has been the increase of part-time and externally funded personnel. This will entail changes in the job descriptions of the teaching staff. On the other hand, the increase in project funding has resulted in a large number of fixed-term teaching and research personnel, whose status in the system has been felt to be problematic to some extent. Too many academics have no permanent employment prospects with related social security problems. Therefore a working group 'Realising a Research Career' has been established in 2008 to discuss the objectives and methods of an operational programme for developing researcher training and research careers. The objective of the process is a more transparent, more predictable and more egalitarian research career.

Owing to the age structure of university personnel, an above-average number of staff will retire in the near future. Thanks to the measures to set up postgraduate education, there will not be any shortage of competent teachers. An interesting fact is that the proportion of research personnel in the total labour force is the highest of all OECD countries (Ministry of Education, 2007a). The Ministry of Education has launched an action programme for the development of researcher education and careers for the period 2007–2011. This includes the funding of 119 graduate schools with about 1450 graduate student places.

2.5 Policy developments: educational infrastructure

There is a number of developments going on in Finnish education. The major issues under consideration in 2008 are listed here.

Towards a new application system

The aim has been to put in place a new nation-wide co-ordinated application system serving both applicants and universities. The joint application system is envisaged to be operational in its first stage in the academic year 2008-2009 (Eurydice, 2007/08). The full joint application system will be operational starting from the selections of 2010-2011. The utilisation of matriculation examination grades will be increased in student selections. Universities will also increase their reporting of student selections to secondary level institutions. The recent development has been geared to speed up entry and graduation from higher education with a view to strengthen the labour force now the baby-boom generation is getting into retirement.

Combating drop-out

Dropout is considered as a problem in compulsory education and an action programme to prevent early dropout has been set up, including making education more flexible in its structure (Ministry of Education 2007a).

Promoting entrepreneurship in education

Entrepreneurship education and training have been developed so as to encourage people who complete tertiary degrees to set up as entrepreneurs. The tertiary education institutions have developed study modules in support of entrepreneurship. The entrepreneurship perspective has also been included in the development targets for university researcher training. Many universities and polytechnics have developed the way research results are used and have introduced activities such as business incubators and science parks. The percentage of entrepreneurs out of everyone who completes polytechnic and postgraduate degrees comes to about 2 per cent.

Student counselling and recognition of skills

In 2007 personal study plans (HOPS) were established as a university procedure in support of student counselling and study progress (Ministry of Education, 2007a). A study was conducted of the existing practices for recognising previous studies and previously learned skills, and recommendations were prepared for shared principles and credit transfer procedures for the tertiary education sector.

Change and mergers in the polytechnic sector

Six polytechnics have been preparing to merge into three private polytechnics, one of which started operations at the beginning of 2007 while the others will begin on 1 August 2008. Several institutions are preparing for a transition from being maintained by municipalities to becoming private. Eleven units decided to stop providing degrees for young people. In keeping with the lower targets for student numbers set, several polytechnics reduced the number of training programmes offered, amalgamated programmes into bigger and more effective units and agreed on a division of labour with other polytechnics.

Polytechnic-university co operations

Three projects involving cooperation between universities and polytechnics were completed. The aim of the projects was to clarify the division of labour between universities and polytechnics, eliminate overlap, define profiles and focus areas for each of the institutions involved and develop infrastructures for joint operations. The regional effectiveness of the polytechnics was promoted through research and development that serves teaching and its development and the regional business sector and working life generally.

Externally funded research contract activities

The extent of operations, measured in terms of spending, grew by 32.8 per cent on the 2004 figures. The polytechnics now account for 8.5 per cent of the total R&D spending in the entire tertiary education sector. The extent of operations measured in terms of person years in proportion to the number of teachers, exceeded the aim for the contract term (20%). The percentage of final projects that are done as commissioned projects continued to grow. These are commissioned by various business-sector organisations or are supervised by representatives of such organisations. The internationalisation of R&D also grew considerably, but there is still significant variation between polytechnics. Structural development of universities gains momentum.

Cooperation and mergers in the university sector

The universities draw up action programmes for structural development which will attract funding for long term nationwide development projects and support for structural development of tertiary education institutions. The focus of structural development projects was on consortiums supporting top research, electronic service provision and support for cooperation between universities. Three projects were started in order to expand mutual cooperation (the Helsinki Metropolitan Area, Turku, Eastern Finland) and find new cooperation structures leading to a wave of merger initiatives in 2008-2010 (Dobson, 2008b). The mergers are envisaged to create stronger universities that will be more autonomous and attract more external funding.

Quality development in universities

Development of the quality management systems of the universities continued in cooperation with the Finnish Higher Education Evaluation Council (Ministry of Education 2007a). The focus of the funding model was shifted so as to reinforce the prerequisites for research, researcher training and internationalisation. The KOTA performance-based management system portal, which promotes the management process and electronic services, was adopted. The fundamental prerequisites of research and teaching were reinforced. Reform of the financial and administrative position of universities was studied. The Universities Act was amended as a consequence of the study so as to permit the opportunity for fund-based management for all universities.

Institutional profiling

Due to globalization and increasing competition for diminishing younger age groups, system wide restructuring has been called for by the Ministry of Education (Wikipedia, 2008). Since 2006 all institutions of higher education have been sharpening their institutional profiles and developing new methods of cooperation. The total number of institutions is expected to drop significantly within 10-15 years. The profiles of each university and polytechnic will reflect the local and regional development in terms of teaching, research and cooperation with the world of work (Eurydice, 2007/08).

Autonomy and legal status

The autonomy of universities is being strengthened by making changes in the legal status of universities. Universities will form a new type of a legal entity, legal person under public law or foundation under private law (Eurydice, 2007/08). Furthermore, the administration and the decision making of universities will be reformed. The new legislation is expected to come into force in August 2009.

All of this means also an increase in the financial and administrative autonomy of universities (Ministry of Education, 2008). In this connection, university governance and decision-making will also be reformed. In the extensive higher education reform one of the foremost projects is the Aalto University founded on the disciplines taught and researched in the Helsinki University of Technology, the Helsinki School of Economics and the University of Art and Design Helsinki. The university's charter of foundation is to be signed in June 2008.

Funding of the reform, cooperations and mergers

The most visible debates and reforms concern the funding and the restructuring of the higher education network (Eurydice, 2007/08). The network of universities and polytechnics will be developed so that overlaps in programmes are reduced and by bringing together administrative and support services. This will be done through merging universities and polytechnics, intensifying cooperation in teaching, research and shared equipment. In the polytechnic sector already three remarkable mergers have been carried out and the regional network has been made more compact and a service centre for universities has been established. The Ministry of Education will prepare a detailed action plan for the structural development of higher education by 2010. The funding of the polytechnics will be developed into a more performance-based direction so that the level of funding will be, more than presently, defined according to the number of graduates and the quality of education. In addition to the structures and funding, the focus of the development of education and research until 2012 will be the internationalisation and increased attention to the quality of higher education and research.

A service centre for universities

A service centre will be established to provide support services for the financial and personnel administration needs of universities (Ministry of Education, 2008). The

service centre started operation in March 2008 as a unit under the auspices of the Ministry of Education, and at the next stage, units are scheduled to be opened in Vaasa and Joensuu in September. The service centre will provide services related to the management of university income and expenditure, the payment transactions and accounting, payroll and fees, rendering of accounts, service contract issues and the IT systems for financial and personnel administration.

Strategy for the internationalisation of Finnish higher education institutions

A strategy for the internationalisation of Finnish higher education institutions is being devised during 2008. The aim is to develop an internationally strong and attractive higher education and research community in Finland (Ministry of Education, 2008). The preparation of the strategy is recorded in the current Government Programme and forms part of the ongoing reform of the higher education system. It is being prepared by the Ministry of Education in cooperation with the higher education institutions and stakeholders. The strategy will set objectives for the next decade and determine the means of achieving them. The views of stakeholders, such as higher education students and personnel, the academic community, business and industry are explored in an open consultation and at invitational workshops. All information is made available on a special website: <http://www.kansainvalistymisstrategia.fi/en/frontpage>

Basically the strategy of internationalisation for universities and polytechnics is being prepared by the institutions themselves including students, representatives of industry, sponsoring organisations and other parties. It is regarded that Finland has lagged behind in expanding educational markets. Even though competition is necessary, Finland's universities and polytechnics are such small actors on the global stage that they need to be able to find their own strengths and international profiles in cooperation.

Societal and economic engagement in universities

In 2006-2007 the Committee on Societal and economic engagement in universities developed criteria for societal and economic engagement for use in university performance management and to propose a model for the monitoring and evaluation of universities' societal and economic engagement.

The Committee's report includes a proposal for a model for assessing universities' societal and economic engagement which seeks to take account of the different operational circumstances of universities and the strategic choices made by them.

Underpinning the model is an aim to strengthen university autonomy. At the core of the assessment model are five assessment baskets:

- Integration into innovation (commercial-technological and systems innovations)
- Integration into the labour market
- Integration into socio-ecological development
- Integration into the regional operational environment

- Integration into societal debate (incl. societal policy-making and decision-making).

In this report an outline of the model is presented, and a final model should be built in close co operation between universities, the central government, compilers of statistics and other relevant stakeholders. Cooperation across the board between the Ministry of Education and universities both in finalising the assessment model and in using it offers a new cooperation-based paradigm which could be applied more widely in the evaluation and development of the education and research system. The transfer to the proposed system could be effected in stages over the next six-seven years.

Committee Consortium, Federation and Merger

Higher education and research have been gaining a more and more central role in policies geared to enhance political and cultural as well as economic competitiveness. Many countries have sought to respond to the challenges by encouraging higher education institutions to cooperate more closely or by merging HEIs in order to create larger educational and research units, critical masses and more distinct institutional profiles. Closer cooperation and amalgamations of HEIs either within or across sectoral boundaries may be initiated by the HEIs themselves or may constitute a HE policy measure initiated by national decision-makers. The Committee Consortium, Federation and Merger (2007) has is currently exploring different paradigms for closer cooperation between HEIs in Finland. As a supportive measure for the national project for streamlining higher education structures, the Ministry of Education allocated a grant to the University of Tampere Department of Management Studies in November 2006 for a review of international cooperation models in higher education. The review was to support the projected national reform instigated by the Ministry by providing an international sounding board for national reflections. The study approached the cooperation paradigms through the concepts of consortium, federation and merger through analyzing five international case-studies.

Changes in entrepreneurship intentions during polytechnic education

The debate on entrepreneurship intentions shows that we lack research into possible changes in intentions effected through education and the related processes (Committee Changes in entrepreneurship intentions during polytechnic education, 2008). The committee seeks to elucidate intentions based on the educational strategies of two polytechnics by means of a longitudinal case study. It particularly focuses on the perspective of education policy and education provision. The main problem in the study is: Does entrepreneurship education change the entrepreneurship intentions of students? The study looked at entrepreneurship education in terms of multiple strategies and used a quantitative survey and a qualitative interview with a focus group as the method.

The results show that accelerating factors involved in entrepreneurship education do not effect changes in students' entrepreneurship intentions. Entrepreneurship intentions appear to be relatively constant during studies. Students consider entrepreneurship education an important part of their studies. The education heightens awareness of entrepreneurship at a general level. According to the students, however, entrepreneurship education triggers uncertainty as to their confidence in their own entrepreneurial skills because of the oversized objectives set for the entrepreneurship education and the lack of encouragement and intellectual support for entrepreneurship. The results can also be used in planning and implementing education provision and teaching arrangements.

3 RESEARCH INFRASTRUCTURE

3.1 Introduction

In 2006 research and development expenditure represented 3.4% of the gross domestic product, which puts Finland among the OECD top (Ministry of Education, 2008). The Finnish R&D expenditure was about 5.8 billion euros. The private sector investments constituted 65%, the national public input was 28% and foreign funding contributed the remaining 7% of the total Finnish R&D expenditure. About half of the business sector investments came from the electro technical industry. Publicly funded research is mainly conducted in universities and research institutes.

Over the past decade, the number of R&D personnel has grown from 40,000 to nearly 80,000 (Ministry of Education, 2008). This makes over 2% of the overall labour force, which is the highest figure among all the OECD countries. The number of doctoral degrees has similarly doubled in the past ten years.

Science policy is designed to raise the level, coverage, impact on society and international visibility of Finnish research.

Graduate schools lower the age of doctoral candidates

The Finnish universities have had a system of graduate schools since 1995. They were put in place in order to shorten the time it takes doctoral students to write their thesis and to increase international cooperation. In the graduate schools, doctoral students are paid and work on their theses full-time. There are 119 graduate schools, which have altogether 1,500 postgraduate places. Currently, one in three doctoral students in the graduate schools are under 30 when they defend their thesis (Ministry of Education, 2008).

3.2 Science policy in Finland

Key players

With regard to science policy it is the government who outlines the principles underpinning science, technology and innovation policy and drafts relevant legislation (Ministry of Education, 2008). The ministries are responsible for planning and implementing these science and technology policies. Within the Ministry of Education the Department for Education and Science Policy and its Science Policy Division handle matters relating to education and science policy. The Ministry of Employment and the Economy deals with industrial and technology policies, the Technology Development Centre (Tekes) and the Technical Research Centre of Finland (VTT).

The government is assisted by the Science and Technology Policy Council which is chaired by the Prime Minister. The Council outlines and harmonises science and technology policy and prepares plans and proposals concerning policy, scientific research and education to the government. As such the council plays a pivotal role in promoting science and technology and relevant education. The Academy of Finland is an important source of research funding in the Ministry of Education sector.

Aims

The aim of science policy is to promote science and scholarship, to assure the quality, impact and positive international development of research and researcher training and to promote the development of an efficient and blanketed research system in cross-sectoral cooperation (Ministry of Education, 2008).

The development of scientific research is based on the Development Plan for Education and Research (Ministry of Education, 2004), the Government Programme and policy outlined by the Science and Technology Policy Council.

The Government Programme stresses the role of research as the foundation of knowledge and know-how. Sustainable economic growth and immaterial and material welfare are based on knowledge, which is safeguarded by research and development funds. Measures are being taken to increase research funding, notably the appropriations for the Academy of Finland and the core funding of universities. Current priorities are to develop public research funding, raise the profile of Finnish science, to intensify the utilisation of research findings and to improve the knowledge base for science policy. In 2007 the Science and Technology Policy Council of Finland (2007) developed a national strategy of Finland which is mainly based on research, innovation and success in key policy areas like education, science, technology and innovation. Public and private parties have increased their investments in partnerships to create and exploit new knowledge, technology and skills. These efforts and their results have increased the need for a more detailed analysis of the impact of policy measures and funding, and the subsequent development opportunities. It has become apparent that impact assessment and foresight are challenging fields, requiring highly developed methods and a range of development measures with forward thinking and insight.

National strategy for excellence

Based on a 2005 Government resolution concerning the structural development of the public research system the Science and Technology Policy Council of Finland developed a national strategy to stimulate excellence and better exploitation of large national research infrastructures (Science and Technology Policy Council of Finland, 2006). They recommended the creation and consolidation of internationally competitive centres of excellence in science, technology and innovation (STI).

It was regarded crucial to Finland's international competitiveness to develop a long-term investment in STI. The development activities combine need- and customer-based approaches alongside with international top quality. The aims of the development measures presented in the report are: 1) to promote the innovation system's overall functionality and ability to renew itself; 2) to enhance the competence base; 3) to improve the quality and focusing of research; 4) to promote the introduction and commercialization of research results; and 5) to secure adequate economic prerequisites for the activities.

One of the most significant foci of co-operation between public and private sectors will be the international high-level Strategic Centres of Excellence in STI, which are due to be established in the following theme areas:

- 1) energy and environment;
- 2) metal products and mechanical engineering;
- 3) forest cluster;
- 4) health and well-being;
- 5) information and communication industry and services.

In addition to these infrastructural developments there is the objective to create a genuine researcher career system which requires long-term investments in the different phases of researcher careers, i.e. the phases after PhD graduation and prior to professorship.

All of this requires a programme for Increasing Public Research Funding 2007–2011. As such, the the Government has set a goal of increasing R&D intensity from the current 3.5 per cent to 4.0 per cent of GDP by the end of the decade

3.3 International context

International interaction is a precondition for high-standard research. Therefore Finland closely cooperates within the European Union with a number of other countries based on agreements as well as informally. To support the process towards the European Research Area to promote joint research and step up the use of research findings with a view to improving employment and competitiveness in Europe, the Finnish Ministry of Employment and the Economy prepares and coordinates matters relating to EU research policy and the Ministry of Education stimulates basic research, researcher training and mobility, research infrastructures, research-society relations and cooperation with non-EU countries. In addition, higher education institutions and researchers can make their own arrangements.

To materialise its international ambitions, Finland contributes to international research organisations through participating in large research equipment which no one country could afford alone. In addition, Finland participates in the work of many international research organisations, like:

- European Organization for Nuclear Research CERN
- European Molecular Biology Laboratory EMBL
- European Space Agency ESA
- European Southern Observatory ESO
- European Synchrotron Radiation Facility ESRF
- Organisations promoting cooperation between national research systems include
- European Science Foundation ESF
- European cooperation in the field of scientific and technological research COST, and
- European Strategy Forum on Research Infrastructures ESFRI.

Beyond Europe Finland contributes in various ways to global science forums like UNESCO and OECD committees and working groups. Furthermore there is strong research cooperation with areas adjacent to Finland such as the Nordic cooperation, which is expanding to the Baltic states, arctic research and cooperation with Russia. There is a specific organisation called Nordforsk to promote cooperation among the Nordic countries.

3.4 Intermediate organisations and research organisations

The Finnish research landscape includes a number of agencies and institutes that are subordinate to the Ministry as well as expert bodies appointed by the government or the Ministry, and partner organisations. These include the Academy of Finland, the National Archives Service, the Research Institute for the Languages of Finland, and the Repository Library (Ministry of Education, 2008).

The Academy of Finland

The Academy of Finland is the country's central agency for science administration. It is an important source of research funding, financing a wide range of basic research, which underpins innovative applied research and the utilisation of research findings. Most of the Academy funding is channelled to university research. The Academy, jointly with Tekes, administers EU research programmes and international research organisations in Finland. It is also a source of expertise for many science and technology organisations (Academy of Finland, 2008). Other key agencies funding science and technology in Finland are Tekes, the Finnish Funding Agency for Technology and Innovation, and Sitra, the Finnish Innovation Fund. The Academy operates within the administrative sector of the Ministry of Education.

The Academy was founded in 1947 by act of Parliament. Although it is a part of government, scientists and research councils make public administration decisions. The function of the Academy of Finland is to promote and publicise high-level research. It funds basic research which lays the foundation for innovative applied research. Scientifically topical research is given special emphasis.

The Academy of Finland is also committed to promoting the internationalisation of Finnish science and research (Academy of Finland, 2008). It works closely with key funding agencies in Europe and elsewhere with a view to ensuring that researchers in Finland are in the best possible position to carry out high-quality cooperation with colleagues abroad. As such, the Academy provides funding to support the international cooperation of national Centres of Excellence in research and other cutting-edge research teams and units and to support their efforts to make their research environments more attractive and internationally competitive. The Academy has various funding mechanisms to support the mobility of researchers to encourage increased mobility both from and to Finland at all stages of the research career. In addition, the Academy represents Finland on many international science forums.

The Academy has four Research Councils:

- *Research Council for Biosciences and Environment*: The scope of the Research Council for Biosciences and Environment covers the key fields in terms of the well-being and future of society: natural resources and the environment as well as biosciences. The Council decides on research funding within its own field of expertise. The research funded by the Council is in essence often interdisciplinary. It may be motivated by needs arising from science itself or from society.
- *Research Council for Culture and Society*: The Research Council for Culture and Society decides on research funding within its own field. The Research Council hosts several different disciplines, and research within its scope of expertise is conducted at all Finnish universities. Both in the humanities and the social sciences, Academy funding is crucial to universities' external funding.
- *Research Council for Natural Sciences and Engineering*: The Research Council for Natural Sciences and Engineering decides on research funding in its own field. The aim of the Council is to recognise Finnish research that is internationally of a high standard, to actively support the progress of this research, to improve researcher training (incl. postdoctoral researcher training), and to promote international scientific cooperation and to identify new fields of research of national importance.
- *Research Council for Health*: The Research Council for Health decides on research funding within its own field. The Council supports versatile cutting-edge research and research with a potential to become such. The standard of the research is assessed with scientific criteria and by comparing it to the international level. The Council pays special attention to identifying and supporting promising young researchers.

Each Research Council Chair is a member of the Academy Board. The Research Council members as well as the holders of Academy research posts (Academy Professors and Academy Research Fellows) work at their own university or research institute. The Government appoints a Chair and a maximum of ten members for each Research Council for three years. In appointments, care is taken to ensure that the Research Councils shall represent versatile scientific expertise of a high standard. Before the appointment of a Research Council, the Ministry of Education shall hear the universities, government research institutes, public authorities and corporate bodies representing research and development, major scientific societies and science academies. The number of staff working at the research and administration units of the Academy (Administration Office) is 160.

The Science and Technology Policy Council

The Science and Technology Policy Council of Finland, chaired by the Prime Minister, advises the Council of State and its Ministries in important matters concerning research, technology and their utilisation and evaluation (Ministry of Education, 2008). The Council is responsible for the strategic development and coordination of Finnish science and technology policy as well as of the national innovation system as a whole. This is done by:

- following international developments in research and technology and the development needs they cause in Finnish research and technology
- addressing major matters relating to science and technology policy and preparing plans and proposals concerning them for the Government;
- addressing the overall development of scientific research and researcher training;
- addressing the development and utilisation of technology and technology impact analysis;
- addressing important matters relating to international science and technology cooperation;
- addressing the development and allocation of public research and innovation funding;
- addressing important legislative questions concerning research, technology and scientific education; and
- taking initiatives and putting forward proposals in matters within its remit to the Government and its ministries.

The Science and Technology Policy Council of Finland was established in March 1987. A new Decree on the Science and Technology Policy Council of Finland came into force 1st of January 2006. This states that Finland's research strategy is to ensure sustainable and balanced societal and economic development. Thus far, Finland has been successful in combining economic development with the overall development of society and the environment and in increasing the citizens' well being in an internationally recognised manner. In addition to other factors, this success is grounded in the high level of education of the population as well as increasingly wide-ranging development and application of knowledge and expertise (Science and Technology Policy Council of Finland, 2006).

These national strengths must be safeguarded for the future. To this end, more international co-operation is needed. The pivotal factors for realisation of the strategy are increasing employment and ensuring high productivity and international competitiveness. In this context, research, the development of technology, exploitation of results, and strengthening of both social and technological innovation play a crucial role. Success requires high-quality research and competence as well as honing of all activities within the remit of the Council. Success shall be evaluated on the basis of the overall impact of policy measures. The main principles in the development are prioritisation of operations, national and international profile-building and selective decision-making based on foresight (Science and Technology Policy Council of Finland, 2006).

The aim of development measures is to: 1) promote the overall functionality of the innovation system and the system's ability to renew itself, 2) enhance the knowledge base, 3) improve the quality and targeting of research, 4) promote the adaptation and commercialisation of research results, and 5) secure adequate economic prerequisites for the activities.

The National Archives Service

The National Archives Service is an expert and service organisation which ensures that archival material of great importance for the individual and society is preserved in a compact form and is easily available for use. The National Archives Service is responsible for securing the preservation of and access to documents of prime relevance to our national heritage (Ministry of Education, 2008).

The Research Institute for the Languages of Finland

The Research Institute for the Languages of Finland studies the Finnish, Swedish, Saami, Romany and Sign languages (Ministry of Education, 2008). It advises and guides in language problems and keeps various linguistic research archives, materials and an extensive linguistics library for the use of researchers.

The Repository Library

The Repository Library receives and preserves materials transferred from research and public libraries and makes them available to users (Ministry of Education, 2008).

The National Advisory Board on Research Ethics

The National Advisory Board on Research Ethics is an expert body appointed by the Ministry of Education (2008) to make proposals and issue opinions on legislative and other matters concerning research ethics.

The Committee for Public Information

The Committee for Public Information follows achievements in science and scholarship, arts and technology in Finland and abroad and developments in national and international knowledge (Ministry of Education, 2008).

The Delegation of the Finnish Academies of Science and Letters

The Delegation of the Finnish Academies of Science and Letters is a joint organ of the Finnish Society of Science and Letters, the Finnish Academy of Science and Letters, the Finnish Academy of Technology and the Swedish Academy of Engineering Sciences in Finland, which promotes cooperation between its member academies and represents them internationally (Ministry of Education, 2008).

In 1994 the Finnish Academy of Technology and the Swedish Academy of Engineering Sciences in Finland, together with the Finnish Foundation of Technology, established the Finnish Academies of Technology (FACTE), which also has companies as members.

The Federation of Finnish Learned Societies

The Federation of Finnish Learned Societies is an umbrella organisation for learned societies, which promotes the interests of its member organisations by publication, initiatives promoting research and statements (Ministry of Education, 2008). The Federation contributes to the development of research cooperation and the flow of scientific information. It has member societies representing all the disciplines.

Next to all these intermediate bodies and research centres, the Ministry of Education promotes scientific research and develops supportive services by financing the acquisition of equipment and the development and maintenance of information networks, scientific computing and research libraries (Ministry of Education, 2008).

Scientific computing and web services

The (CSC) is a national expert organisation owned by the government and administered by the Ministry of Education, which specialises in scientific computing and net services.

Research libraries

Research libraries include university, polytechnic and specialised libraries which serve education and research. There are over 200 research libraries in Finland. The nucleus of research libraries is the academic library network composed of university libraries, the Helsinki University Library, which is the National Library, and the Repository Library.

3.5 Policy developments: Research

In the area of research there are a number of policy developments to be discerned.

The evaluation of the Finnish researcher education and research careers

In October 2004 the Ministry of Education appointed a committee to formulate a strategy for the development of professional careers in research and to make research career more attractive also for female researchers (Committee on the development of research career, 2006). In addition an international evaluation group was established to report on doctoral education in Finland (Committee on the development of researcher training, 2006). The major outcomes are the following.

The committee looked into the research career systems both in Finland and abroad, it analysed recent plans for developing the research system and found the greatest challenges of research careers to be short terms of employment, obstacles to intersectoral mobility, difficulties in combining external research funding and career development, career advancement of women researchers, a low degree of international mobility, a small number of foreign researchers in Finland, the attractiveness of research career, the economic position of researchers, and the volume of researcher training. It was recommended that a four-stage research career system should be developed in Finland. This system encompasses research career in universities and public research institutes as well as in other sectors when applicable. It is based on the parallel development of the funding instruments of the Academy of Finland, Tekes, the Finnish Funding Agency for Technology and Innovation, and as widely as possible also of foundations, and on the reform of research post structures in universities and research institutes.

It was perceived that the target of raising R&D investment to four per cent of GDP already agreed on by the government creates satisfactory funds to accomplish the above mentioned objectives. The supplementary funds should be targeted at extending the Academy's postdoctoral researcher system, increasing the number of Academy Research Fellows, founding posts for University Researchers in universities as well as for funding continued terms of Academy Research Fellows' and University Researchers' posts jointly by the Academy and universities.

The committee also recommended to further stimulate internationalisation, remove obstacles to women's research career, develop postdoctoral researcher training, and to improve the database of research careers.

In addition, the Committee on the development of researcher training (2006), based on an evaluation in which most of the universities and their graduate schools or doctoral programs participated, indicated that there are many good practices in the Finnish Graduate Schools (GS). For example there seemed to be a clear correlation between GSs external information provision and well-established research capability, experienced leadership and related resources. It also appeared that GSs with a committed and strong leader, a clear purpose and explicit “vision, mission and identity” functioned better than those without. Therefore the major recommendations and current direction of development are to:

- Continue, but revise, the GS system
- Encourage the development of university-wide means of assuring quality in doctoral education
- Develop a code of conduct; international benchmarking
- Maximize four-year funding; create national fellowships
- Address the “passive participation” problem
- Encourage further internationalization of the doctoral education system.

Working group on transparent, predictable and egalitarian career for researchers

Based on the findings on the above mentioned committees the working group ‘Realising a Research Career’ put into specific terms the objectives and methods of the operational programme for developing researcher training and research careers. The presentations are based on the four-stage research career model in universities. The objective of the model is a more transparent, more predictable and more egalitarian research career (Ministry of Education, 2008).

The Nordic Excellence in Research initiative

Finland adopts a positive stance towards the Nordic Excellence in Research initiative in the areas of climate, energy and the environment, which was discussed by the Nordic Council of Ministers in 2008 (Ministry of Education, 2008). According to the Minister of Education and Science, who represented Finland in the Council, the proposal is a significant one even by international standards, and it can make the Nordic countries a globally important player in climate and energy issues. Research projects will study, for instance, how the Nordic countries can efficiently achieve the challenging EU targets on renewable energy.

Memorandum of the Research Infrastructure Committee

In summer 2007 the Research Infrastructure Committee (2007) proposed that Finland should establish mechanisms for competed funding of research infrastructures and equipment. This calls for more centralised planning of and increased financial investment in research infrastructures, long term solutions and permanent structures for funding. The committee proposes that Finland should set up a permanent body to outline infrastructure policies and strategies, and determine related funding policies. The permanent body should regularly review the current state of infrastructures and assess

the long term needs (10–15 yrs) of different research fields (road map) in terms of infrastructures, including participation in international research infrastructures. The committee proposes a supplementary infrastructure appropriation to be financed with income from the sale of state-owned companies.

Finlands eScience Programme

The Committee on grid strategy (2007) investigated the current status and future prospects of a grid strategy for network technology and preparing a proposal for the necessary actions and distribution of work. It became evident that exploring information technology use in the research and innovation system should be broadened beyond the point of view of grid technology. As a strategic action, the working group suggests that an eScience programme be launched in Finland. The working group proposes the following actions:

- Increase the number of Master's and doctoral programmes in computational science in Finnish universities.
- Initiate a broad multi-disciplinary research programme in computational science and engineering.
- Ensure that the Funet network remains competitive also in the future.
- Establish multi-disciplinary or discipline-specific grid infrastructures for computation and data storage, moving also beyond sectoral boundaries.
- Initiate a "National Grid Initiative" to coordinate national and international grid infrastructures.
- Ensure that Finnish scientists are able to utilize efficiently the high-performance computing and data management infrastructures emerging in connection with the EU Seventh Framework Programme.
- Build a national, comprehensive and cost-effective environment and specialist cluster for massive data materials management.
- Develop funding systems that will improve the quality of software for computational science.
- Develop funding systems that will enable researchers to buy or develop services in support of networking collaboration.
- Assign a steering group for the eScience programme that will coordinate the above mentioned actions.

The four-stage research career model

The working group 'Realising a Research Career' further developed the objectives and methods of the operational programme for developing researcher training and research careers (2007–2011) that were published by the Ministry of Education in 2007. The working group's presentations are based on the four-stage research career model in universities that promotes the transparency and predictability of a research career. The four-stage research career system aims at supporting and facilitating transfers back and forth between universities and other actors, (research institutes, companies, the civil service) by, for example, readjusting the method of evaluating qualifications acquired by researchers outside of their academic work using the system's qualification descriptions. The four-stage system also provides companies and research institutes with methods for examining the structure of their own system of permanent positions. The first stage usually consists of young researchers working on their doctoral dissertation, the second stage is the career phase of researchers who have recently completed their doctorate, the third stage consists of independent research and education professionals capable of academic leadership, and the fourth stage is that of professorship. It should be possible to develop aspects within the system, such as components that encourage mobility, advancement opportunities as a result of successful research and opportunities to establish permanent positions. Universities must adopt a flexible method of establishing permanent positions both within the stages as well as in the phases between them.

The working group suggests that the Ministry of Education take into account the implementation of the four-stage research career system in universities when considering their funding and management by results. In the management by results procedures between research institutes and ministries, the perspective of the researcher's career will also be discussed. The working group also suggests that in the near future, the promotion of research careers will be a more important aspect in the activities of public research financing and trust funds.

According to the working group, post-doctoral international mobility to and from Finland must be increased by, for example, unifying regulations at the European level and by adopting a plan of action by which social security and advancing in one's career is not negatively affected by periods abroad.

Development of computational Science in Finland

Since 2006 a Committee of computational Science in Finland (2007) studied how to promote university research and education in computational science and to put forward a proposal for national development of the field. In particular, the committee made proposals for improving undergraduate and postgraduate education in computational science and for developing computational science and integrating it more structurally into the methodologies of different disciplines. Further, the committee was to explore ways to promote cooperation between the public and private sectors.

A computational approach may enhance understanding in areas of societal significance and it strengthens multi- and cross-disciplinary research and steps up product development. By also bridging disciplinary boundaries in the public and private sectors it adds to innovativeness and new breakthroughs in R&D.

To exploit computational science more effectively, knowledge about this field needs to be increased across the board and infrastructures need to be built and maintained, e.g. in the form of support services. National and international cooperation must be stepped up. Also the production and infrastructures of digital information materials must be increased substantially.

The committee proposes that the Ministry of Education and other public sector finance cross-disciplinary projects in computational science both in methodology sciences and in applied sciences from 2009 to 2012. The Finnish Funding Agency for Technology and Innovation and the Academy of Finland should increase funding for computational science research and develop their expertise in computational science. Funding bodies, research organisations and business enterprises should initiate an exchange programme for computational science researchers between the business world and the academia.

The necessary information technology infrastructure for computational science must be developed and maintained jointly and severally as a balanced national entity. Measures must be taken to intensify cooperation between universities and sectoral research institutes in the construction and utilisation of infrastructures. Further, efforts must be made to ensure access to computational science in the Strategic Centres of Excellence to be set up. Particular care must be taken that the strategic centre in ICT will include an operator promoting generic knowledge in computational science.

4 FINANCE

The Ministry of Education allocates government grants for basic, upper secondary, vocational, polytechnic and university education, for research, and for continuing vocational and professional education and liberal adult education. Education is primarily co-financed by the government and local authorities. The local authorities pay 54.7% of the public cost of basic education, general upper secondary education, vocational education and training and polytechnic education, the state takes 45.3% of statutory funding. As the funds are not earmarked, the education and training providers can use them at their discretion. Universities, continuing vocational and professional education and liberal adult education are state-funded. In addition to this public funding, polytechnics and universities provide fee-paying services and carry out projects.

4.1 *University funding*

Funds granted by the Ministry of Education to universities comprise core funding, project funding and performance-based funding. Core-funding is intended for instruction and research. Direct government funding covers about 64% of university budgets. The 2006 State Budget allocated € 1.26 billion to cover the operating costs of universities (Ministry of Education 2007b). The level of university core funding was maintained and supplementary funding was targeted at national development projects, such as information society projects, development of learning processes and environments, and improvements in the prerequisites for research. In accordance with the Higher Education Development Act, appropriations for university core funding in 2006 rose by € 20 million in addition to the increase in salary expenditure. Overall, university operating costs in 2006 increased by € 32.3 million. The universities also expanded their funding base by acquiring supplementary funding totalling € 698 million in addition to budgetary core funding. This external funding mainly comprises nationally competed research funding, co-funded operations, fee-charging operations, donations and sponsorship.

The appropriations and the objectives, direction, evaluation and development of university operations are determined in performance agreements concluded by the universities and the Ministry of Education. Universities also receive a great deal of external financing, e.g. for research projects, and have income from services they provide, such as continuing professional education. In addition to the Ministry of Education, important sources of financing are the Academy of Finland, the Technology Development Centre Tekes, business enterprises, the EU and other public bodies. Most external funding is targeted to research. The Academy is responsible for the evaluation of research. Universities also have income from commercial services, such as continuing professional education.

The procedures for steering universities were jointly developed by the Ministry of Education and the universities towards management by target outcome in the 1990s (Ministry of Education, 2005). In recent years, by reducing legislative and budgetary control, university autonomy has grown. In 1994 university budgeting was transformed by the introduction of a single operational budget. From 1997 onwards there was a gradual transition to core funding based on calculated unit costs. The 1998 Universities Act increased university autonomy, also in financial issues, but in exchange for agreeing on target outcomes that will be monitored. The targets are determined for 3-year agreement periods.

The resources for the Ministry of Education sector are annually decided by the Government in the budget framework. The Ministry determines the share of the university budget within this framework. The core funding from the Ministry of Education is meant for university research and relevant teaching and maintaining the relevant infrastructure, including the whole national research system. One aim of the financing system is to include only the funding of essential development needs and to ensure continuity. Another aim is to effect a closer connection between targets and resources. i.e. that the expanding activities and the growing facilities expenditure are reflected by a corresponding increase in the budget. Therefore the core funding formula is based on unit costs geared to secure both the core mission of universities – teaching and research – and the financing of the societal services they provide. Universities use their own criteria in internal resource allocation. The financing allocated by the Ministry of Education (2005) to universities during the agreement period 2004–2006 comprises the following (as a percentage of operational expenditure in 2004):

- Actual core funding (89.4%)
- Financing of national tasks (1.5%)
- Financing of national programmes (4.7%)
- Project funding (1.9%)
- Performance-based funding (2.4%)

Core funding

It is aimed at keeping core funding as stable as possible and at a level which covers most operational expenditure, around 87% (Ministry of Education 2005). The core funding is allocated by means of the unit-cost formula, which has been designed to be as transparent and predictable as possible. The purpose is to divide the framework funding between the universities, not to allot funds directly to different degrees or other activities. This will also secure resources for other activities besides undergraduate and graduate education. The formula used to allocate university core funding comprises four segments: extent of activities, teaching, research and societal services. The extent factor comprises the basic component allocated to all universities, resources based on the target number of new students determined in the performance agreement, and facilities expenditure. The basic component is determined in relation to the 2003 operational expenditure. The new student allotment is determined in relation to the target numbers

set in the performance agreements for 2004–2006 and the facilities expenditure is divided in relation to the 2002 data on realized budgetary expenditure on facilities as recorded in the KOTA database. The extent appropriation is agreed for a three-year period. The criteria used in the teaching and research appropriations are the target numbers of Master's degrees and doctorates (coefficient 2/3) and the bachelor degrees conferred (coefficient 1/3) in each field of study. The realised number of degrees is calculated as a three-year average to minimise annual variation. The target and realised numbers of Master's degrees are further weighted with a field specific cost coefficient. As regards doctorates, it is assumed that the costs do not vary between fields to the same extent as in undergraduate education. The differences are further levelled out by external research funding. Field-specific cost factors are difficult to determine because the fields of study differ in their internal structure. In addition, separate financing is granted for certain activities in some fields of study. There are still some weaknesses in the cost calculation data with regard to time-use. The Master's degree coefficient in different fields of study in the period 2004–2006 were:

- I group (1.25): The Humanities, Economics, Law,
- Theology, Health Sciences And Social Sciences
- II group (1.5): Education; Sport Sciences;
- Psychology
- III group (1.75): Technology, Natural Sciences;
- Forestry-Agriculture
- IV group (3.25): Pharmacy; Veterinary Sciences;
- Dentistry; Medicine
- V group (Arts): Fine Arts and Art & Design (3.75); Music (4.5); Theatre And Dance (5.5)

In the research allotment, account is taken of the financing of graduate schools, which is decided by the Ministry of Education on the basis of Academy of Finland evaluations and the proposal of the graduate school follow-up group. The size of the societal services appropriations depends on open university provision and other non-core services. The financing of open university instruction is based on the target and realised numbers of full-time equivalent student places (2/3–1/3). The funding allocated to other societal services is intended to support equipment-intensive activities and those that reinforce the university's regional impact. The financing is partly calculated on the basis of R&D expenditure and research personnel.

National tasks

National tasks are activities of major significance in terms of national education, research or cultural policy and have been assigned to the universities in legislation (Ministry of Education, 2005). These tasks (e.g. the National Library) are not directly connected with degree education. The financing of national tasks also covers posts based on cultural exchange agreements, and the teaching of languages and cultures less widely known in Finland. The government funding only covers part of the costs and the universities have to provide the rest themselves.

National programmes

The multi-annual national programmes initiated by the Ministry of Education derive from the Government Programme, the Development Plan for Education and Research and the Ministry's own resolutions. Programmes relating to national priorities in the period 2004–2006 (Ministry of Education, 2005):

- Educational development (two-cycle degree structure, student selection, quality assurance)
- The Virtual University
- Development of teacher training
- The national health project
- Language technology
- Business know-how
- Biotechnology
- Russia Action Programme
- Information industry
- Regional development

Project funding

Project funding is allocated to universities' own ventures which support nationally set objectives, universities' joint networking projects, and the furnishing and equipment of new buildings (Ministry of Education, 2005). This aid is targeted at strategic priorities which are a special focus in the year concerned. The aim is that universities take care of smaller projects by means of internal arrangements. The condition for the Ministry subsidy is that universities provide part of the financing themselves. The purpose is to ensure the university's commitment and thereby the continuity of the project even when the Ministry financing ends. Where necessary, questions relating to national cooperation networks are agreed in the performance negotiations. Project funding is primarily allocated to cover the cost of coordination in joint projects. The financing of projects necessary for the operation of educational networks is agreed with the coordinating university. Development projects implemented as educational networks must constitute a model of action which supplements the operations of the university institutes and enhances profile definition, structural development, cost effectiveness and productivity.

Performance-based funding

Since 1998 some university resources have been allocated on the basis of performance (Ministry of Education, 2005). Performance based funding rewards universities for the quality and effectiveness of their operations and gives incentive to develop the operations further. The performance-based funding is allocated according to performance criteria relating to policy objectives. The criteria are the same throughout the agreement period, with emphasis on centres of excellence, which are designated on the basis of evaluations and which highlight the quality aspect. Universities can decide independently whether to allocate these funds to their centres of excellence or to use them as their internal performance-based financing. The performance-based funds represent about 2.4% of universities' operational expenditure. The performance criteria for 2004–2006 are:

- Quality of research and artistic activity
 - Centres of excellence in research designated by the Academy of Finland
 - Academy of Finland financing
 - Other external research funding
 - Centres of excellence in artistic activity designated by the Arts Council of Finland
- Quality, efficiency and effectiveness of education
 - Centres of excellence in education designated by the Higher Education Evaluation Council
 - Universities of excellence in adult education designated by the Higher Education Evaluation Council
 - Progress in studies: credit accumulation, the proportion of Bachelor-level graduates, duration of studies before graduation
 - Graduate placement: the graduate unemployment rate and changes in it
 - Internationalisation: student exchanges, balance in exchanges, degrees awarded to foreign students.

4.2 Polytechnic funding

The providers of polytechnic education (local authorities, joint municipal bodies or foundations) receive all core funding from the government (Ministry of Education, 2005). Under polytechnics legislation, the government provides 57% of the core funding and local authorities the remaining 43%. However, the proportion of this local authority's share depends on the number of residents. The government share is recorded in the state budget as a net sum. The local authorities' share of the financing also goes through the government. Although local authorities have no obligation to use all the statutory government aid specifically on education and training, the Ministry of Education and the polytechnics have agreed in the performance negotiations that the polytechnics spend the core funding they receive on running costs in full. Polytechnics obtain almost all their financing for degree programmes from public funds and charge no tuition fees. They also receive external funding, mainly for extension education

services and R&D. This funding amounts to 22% of their budgets. The polytechnics receive three kinds of government funding:

Core funding

Generally speaking, the system of core funding includes both statutory aid and subsidies for running costs and new establishment projects. It is calculated on the basis of unit costs. The main characteristics of the unit cost system are the following (Ministry of Education, 2005):

- The unit costs are determined in advance for the following year; they are not influenced by any decisions taken by a local authority or other polytechnic owner concerning educational arrangements or any funds supplied by them for these purposes.
- The criteria used in granting and calculating the co-financing shares do not govern the actual use of the funds. The financing of polytechnics is included in the overall sum of statutory state aid allocated to the local authorities, who have considerable leeway in allocating the resources at their disposal.
- The local authorities' co-financing share (43%) is based on unit costs, which are the same for all the local authorities.
- Statutory government aid is intended to cover running costs relating to polytechnic degree education and long-term specialization programmes.
- The unit costs are calculated per student. The funds are paid directly to the owner of the institution which has admitted the student.
- The unit costs are calculated from realized expenditure every two years. Unit costs are different for different fields of study.
- To determine the basis for the following year's statutory government aid, the unit prices are multiplied by the number of students.

Project funding

The polytechnics also receive project funding. In recent years, this has been predominantly targeted to the support programme (staff development training, internationalisation, development of information networks and virtual learning environments, and careers and recruitment services); the basic prerequisites of R&D; and the development of the Virtual Polytechnic (Ministry of Education, 2005). Project funding is allocated to joint ventures involving all the polytechnics, the focus in the period 2004–2006 being on the development of studies. Growing resources are also allocated to polytechnics' regional projects. Polytechnics always provide part of the funding for these projects themselves.

Performance-based funding

The performance of polytechnics is assessed on the basis of five theme entities (Ministry of Education, 2005): the development of teaching and teaching methods; the attractiveness of the education and progress in studies; relevance to the world of work and R&D; regional impact; and operations and capacity for renewal. The performance criteria have been determined and revised by a broadbased committee. Some performance-based funding has also been allocated to polytechnics on the basis of evaluations made by the Higher Education Evaluation Council, which in 2002 reviewed the centres of excellence in teaching and in 2003 the centres of excellence in regional impact. In 2003, an appropriation of 1.7 million euros was allocated on the basis of general performance criteria and 1.7 million euros to centres of excellence selected on the basis of the evaluations. The government grants subsidises for certain national projects of a permanent nature, as in the university sector. These include web connections and information networks, the polytechnic monitoring and evaluation database AMKOTA, the student selection system, and library systems.

Reform of the financing system

There are plans for overhauling the system of polytechnic financing with a view to a more stable calculative and encouraging system (Ministry of Education, 2005). The old financing system was based on real student numbers and real costs in main fields of study. The system was quite instable and it missed encouraging elements. The new system would base on calculative student numbers, which would be agreed in negotiations with the ministry and polytechnic and number of graduating students (30%). The reform is connected into larger finance reform in social and health care system and is for the moment in preparatory stage. (ministry of Education, 2006 (OECD Review background report))

4.3 Funding of research

The government outlines the principles underpinning and drafts legislation governing science, technology and innovation policy (Ministry of Education, 2008). The ministries are responsible for planning and implementing science and technology policy. The government is assisted by the Science and Technology Policy Council which is chaired by the Prime Minister. The Council outlines and harmonises science and technology policy and prepares plans and proposals concerning policy, scientific research and education to the government.

The Ministry of Education handles matters relating to education, science policy, universities and polytechnics, and the Academy of Finland. The Academy is the foremost financing organisation in research. Publicly funded research is mainly conducted in universities and research institutes. The Ministry of Trade and Industry takes care of matters relating to industrial and technology policy, the Technology Development Centre Tekes, and the Technical Research Centre of Finland VTT. The Ministry of Education promotes scientific research by co-financing support services, such as equipment, information networks, scientific computing and research libraries.

4.4 Student support and tuition fees

In Finland no tuition fees are charged for the basic and postgraduate degrees. If higher education institutions provide supplementary courses they are free to charge fees.

The purpose of student financial aid is to provide financial support towards study-related costs, to the extent that the provision of such support is not considered to be the responsibility of parents and that one have not made other financial arrangements to secure a living income. In order to qualify, one must be a full-time student, make satisfactory academic progress, and be in need of financial assistance.

Financial aid is available in the form of study grants, housing supplements and government guarantees for student loans (Kela, 2008). Study grant and housing supplement are government-financed monthly benefits. The study grant is subject to tax. If one is granted a government loan guarantee, one can apply for a student loan in a bank of one's choice. The bank will contact Kela to check the loan guarantee details.

Studies supported

Student financial aid is available for full-time post-comprehensive school studies lasting at least two months in an upper secondary school, folk high school, vocational school or institution of higher education. Financial aid is also available for studies abroad.

The full-time requirement is considered to be met if the purpose of the studies is to obtain an academic degree or complete the upper secondary school curriculum, provided in the latter case that the studies comprise at least 75 courses and that the student will each semester take at least 10 courses or 2 matriculation tests. Non-degree academic studies yielding at least 5 credits per month are considered full-time as well. Vocational or other studies qualify if the studies comprise an average of at least 3 credits per month (or 25 hours per week). Mature students of upper secondary schools cannot get financial aid.

Eligibility criteria

The amount of the aid depends on the type of school, age and marital status, and mode of accommodation. One will not be eligible for student financial aid if one receives any of the following benefits: pension (other than survivors' pension), rehabilitation

allowance, unemployment benefits, training allowance, job alternation compensation, adult education subsidy (government guarantee for student loan is available), benefits accompanying apprenticeship training, conscript's allowance and student benefits from another country. When the need for financial aid is evaluated, one's own income as well as under certain circumstances one's parents' or spouse's income are considered.

Types of support

Study grant is available as soon as one is no longer eligible for child benefit (from the beginning of the calendar month following your 17th birthday).

Housing supplement can be paid to students living in rented or right-of-occupancy accommodation. No age limits apply. One is not eligible if one lives with their parent, if one is a home owner, or if one's child or a child of the spouse or cohabiting partner lives with the student (some exceptions apply). Students who do not qualify for the housing supplement can apply for a general housing allowance at the Kela office of their place of residence.

Government guarantees for student loans are available to those in receipt of study grant, with the exception that students under 17 or aged 18-19 who do not live with their parents can get loan guarantees without qualifying for the study grant (in the former case, this is subject to a parental income test). Upper secondary school students can get loan guarantees only if they are being paid study grant. Kela will not normally provide loan guarantees to students who have previously defaulted on a student loan, requiring Kela to pay it back, or who have an otherwise blemished credit record.

Student loans are available from banks operating in Finland. Interest, repayment and other terms and conditions applying to the loan are agreed between the bank and the student. The loan disbursements are specified in the decision concerning eligibility for financial aid. Interest is capitalised (added to the loan principal) if it falls due during a semester in which the student receives financial aid or during the immediately following semester. While the rest of the interest is being capitalised, the student pays interest at a rate of one percent twice a year (if at least €15).

If one enrolled in higher education in academic year 2005-2006 or later, one is eligible for a student loan tax deduction, provided the degree is completed within the set time and if, at the end of the semester in which one complete your degree, one has more than €2,500 in outstanding student loan debt taken out while in higher education. The deduction is equal to 30% of qualifying debt exceeding €2,500.

If one attends a higher education institution, one is entitled to a meal subsidy. The subsidy is paid directly to the operator of the student cafeteria and is worth €1.67 per meal. Students pursuing a degree in secondary education are entitled to complimentary meals.

Table 2: Basic monthly rates of the study grant in higher education (€ before taxes):

Student	Until 31 July 2008	From 1 August 2008
is married or has dependants	259.01	298.00
lives alone, aged 20 or over	259.01	298.00
lives alone, aged 18-19	250.01	298.00
lives alone, aged under 18	126.14 ↑	145.00 ↑
lives with his or her parent, aged 20 or over	105.96 ↑	122.00 ↑
lives with his or her parent, aged under 20	38.68 ↑	55.00 ↑

Notes: Subject to parental income test: ↑ = may be increased ⇕ = may be increased or decreased ↓ = may be decreased

”Higher education” refers to universities, polytechnics and continuing education centres of universities.

The increase that becomes payable at a specified age is available from the beginning of the month in which you reach the specified age. If one is getting less than the maximum financial aid available for the type of school one is attending (categories 4-6 in the table), one can get an increased study grant if the taxable annual income of your parents does not exceed €39,000. Full increase if annual income is €22,770 or less; gradually reduced thereafter.

If one’s monthly study grant is €170 or more, a 10 percent preliminary tax is withheld. If one has no income apart from student benefits, one need not pay income tax because one is entitled to a student grant exemption in the annual tax return.

Housing supplement covers 80 percent of the rent. It is not available if the rent is less than €33.63 per month, and is not granted for the part of the rent that exceeds €252.00. The maximum amount of the housing supplement is €201.60 per month. If you live in accommodation owned by or rented from your parent, the maximum supplement you can get is €58.87 per month. If this accommodation is located in the same building as your parent’s principal dwelling, the maximum housing supplement rate is €58.87 per month and the study grant is paid at the rate applicable to students living with a parent. If you attend a tuition-based programme in a folk high school or a sports institute and live in a student housing facility, you are eligible for a housing supplement of €88.87 per month.

Table 3: Government guarantees for student loans (€ per month, effective from 1 August 2008):

Category of student	guarantee
Secondary education: Students aged under 18	160
Secondary education: Students aged 18 or over	300
Higher education	300
Recipients of adult education subsidy	300

Other income

Income check and exempt amounts (the maximum income you can have and not suffer any reduction in aid). All grants and taxable income (student financial aid excepted) during the entire calendar year are taken into account. For each month during which you receive study grant or housing supplement, the exempt amount is €660 (until 31 December 2007, €505), and for each aid-free month €1,970 (until 31 December 2007, €1,515). Assuming that you received aid for 9 months, you would be allowed to have up to €11,850 a year (until 31 December 2007, €9,090 a year) in other income. The income may be earned at any time during the calendar year.

Table 4: Exempt amounts starting from 2008

Months of aid	Exempt amount per year	Months of aid	Exempt amount per year
1	€22,330	7	€14,470
2	€21,020	8	€13,160
3	€19,710	9	€11,850
4	€18,400	10	€10,540
5	€17,090	11	€9,230
6	€15,780	12	€7,920

The income is not checked when the aid is granted, so you must make sure not to exceed the annual exempt amount. By cancelling or returning (by the end of March the following year) aid you can raise your exempt amount. The income check is based on taxation data. If you exceed your exempt amount, you will be required to pay back financial aid as follows: If the excess is €220 or less (until 31 December 2007, €170 or less), you need not pay back anything. If the excess is €220.01 or more (until 31 December 2007, €170.01 or more), one month's study grant and housing supplement is recovered for each €1,310 (until 31 December 2007, €1,010) by which you exceed the exempt amount. The recoveries are undertaken in reverse chronological order, starting from the last month of aid in the calendar year. The amount recovered is increased by 15%, as specified in the Act on Student Financial Aid (opintotukilaki).

Regarding income which you have received before the month in which you started school or after the month in which you graduated: any amount exceeding €1,970 per month (until 31 December 2007, €1,515 per month), averaged over the period in question, is exempt from the income check.

Financial aid is available also for practical training or a work-study programme that is a compulsory part of the curriculum. If your monthly pay during the training is €505 or more (€660 or more starting from 1 August 2008), the study grant is not available, though the loan guarantee and housing supplement are. Even an educational grant from your school may make you ineligible for the study grant, if it exceeds €213.60 per month (€246 per month starting from 1 August 2008) in secondary education or €259.01 per month (€298 per month starting from 1 August 2008) in higher education or

equivalent. Educational grants intended to subsidise international student exchanges do not count as income.

One must report all scholarships, educational grants from school, remuneration for practical training and work-study periods, and income from abroad to the authority granting the financial aid.

Period of support

If one enrolled in an institute of higher education in academic year 2005-2006 or thereafter, the maximum eligibility period for financial aid is determined by reference to how long obtaining a degree in your line of study is normally considered to take. For each year of study (consisting of 60 credits), you are entitled to 9 months of aid, and for each semester of study, to 5 months of aid. The maximum period of eligibility is equal to the number of years the degree is normally considered to take plus 10 months of aid. After completing a degree, one qualifies for additional months of aid, which can be used for post-graduate or other academic studies (along with any months you may have left over from your first degree). For studies in an institute of higher education, financial aid is available for up to 70 months.

If one drop out and then begin a new course of study, the months for which you have already received financial assistance are deducted from your entitlement for the new degree. Financial aid you may have received for secondary-level education is not deducted from your financial aid entitlement for higher education.

If one is in vocational education, the duration of financial assistance depends on the extent of studies. Additional assistance can be granted on application for up to one year provided that you present proof from your school that you will be maintaining full-time status.

Financial assistance for mature students

Adult education subsidy is available to employees and self-employed persons who have a work history of at least five years and wish to go on study leave. Adult education subsidy is available from the Education Fund.

Mature students who receive adult education subsidy for an unbroken period of at least eight weeks can get a government guarantee for their student loan from Kela. Loan guarantees for mature students are provided for all the same programmes of study as the adult education subsidy. Mature students' loan guarantees are subject to the same terms as those for regular students.

Grants of adult education subsidy and mature students' loan guarantee can be backdated to the first day of the month preceding the application. Application forms for each are available in Kela offices.

Foreign students

Non-Finnish citizens can get financial aid for studies in Finland if one lives in Finland on a permanent basis for a purpose other than studying. This requires that you are registered as a permanent resident in the Finnish population register system. The purpose of residence in Finland is determined by reference to such matters as the residence permit, registration or acceptance to an educational institution.

Assistance for studies abroad

Students can also get financial help with studies that take place outside Finland, provided that they correspond to Finnish studies that would be covered by the student financial aid provisions or form a part of a Finnish degree programme. Financial aid for a course of study which is conducted entirely outside Finland is only available for citizens of Finland, other EU/EEA countries or Switzerland and their family members. You must have been resident in Finland for at least two years within the five years preceding the course of study (in other words, you do not qualify if you have lived abroad for more than three years before beginning your studies). If you are not a Finnish citizen, you must either have a right to permanent residence in Finland (as defined in the Aliens Act), be working in Finland (the intended course of study is expected to be closely related to your job), or be unemployed through no cause of your own. If you are the family member of an employed person, you are entitled to financial aid on the same terms that apply to Finnish citizens.

For those studying outside Finland, the study grant is paid at the same rate as it would be in Finland, with the exception that the grant for studies at a foreign vocational training institute is equal to the grant provided to students attending a higher education institute in Finland. Housing supplement (usually €210/month) and the government guarantee for student loans (€440/month for higher education studies and €360/month for secondary-level studies) are also available.

Help with loan interest payments

Interest assistance is available to all those who have a low income and who have not received financial aid for a specified period. In order to qualify, your gross income may not exceed on average €775 per month in the four months preceding the due month. Higher income limits apply to those with dependent children. The assistance is given for market-rated student loans, provided that interest is not being capitalised. Interest assistance must be applied for separately. Assistance with interest payments due while you are performing your national service is available under the conscript's allowance scheme.

4.5 Policy developments: Finance

New salary system

A new salary system has been implemented in the universities, but the new salaries will be paid gradually, so that possible pay rises will only be implemented in full by 1.10.2009.

More resources

In the budget proposal for the sector of the Ministry of Education proposes additional investments in the education sector: The year 2008 will be devoted to improving the quality of basic education and expanding vocational education. An increase in the operating budgets of universities is a key element in the emphasis on competencies. Improvements will be made in student financial aid in accordance with the Government programme. Youth workshops will be supported. Greater resources will be allocated to child, youth and family policy programmes. Additional funding will subsidise cultural exports. For higher education it is interesting to note that additional resources will be spent on:

Operational funding to universities will increase by € 20 million. An additional € 7 million, in the form of a one-time subsidy, will furthermore be allocated to the structural development projects of universities. Implementation of the productivity programme will continue. More extensive tax-deductibility of donations boosts funding to research, among other areas. The sum of € 1 million will be set aside for planning the proposed "Innovation University".

The Academy of Finland will be given authorisation to issue an additional € 20.3 million in research grants. The Military Archives and the Government Archives will be merged into the National Archives Service subordinated to the Ministry of Education. Provision for the operational expenditure of the committee for sectoral research will be made in the operating budget of the Ministry of Education.

Student grants will be increased by a minimum of 15% at all educational levels, starting in the autumn term of 2008. Students will also be allowed to earn 30% more income before their student aid is affected. The student grant available to university students will rise by a maximum of € 39/month. The very smallest student grants will, however, be given a fixed-sum increase of € 16/month. The income cut-off will be raised by € 2,760 to € 11,850 per year. The State loan guarantee to students over the age of 18 enrolled in non-university education will be increased from € 220 to € 300.

5 GOVERNANCE STRUCTURES

Parliament passes legislation concerning education and research and determines the basic lines of education and science policy. The Government and the Ministry of Education, as part of it, are responsible for preparing and implementing education and science policy. The Ministry of Education is responsible for education financed from the state budget. The lines of education and science policy are determined in a development plan for education and research, which is adopted by the government every four years (Ministry of Education, 2008).

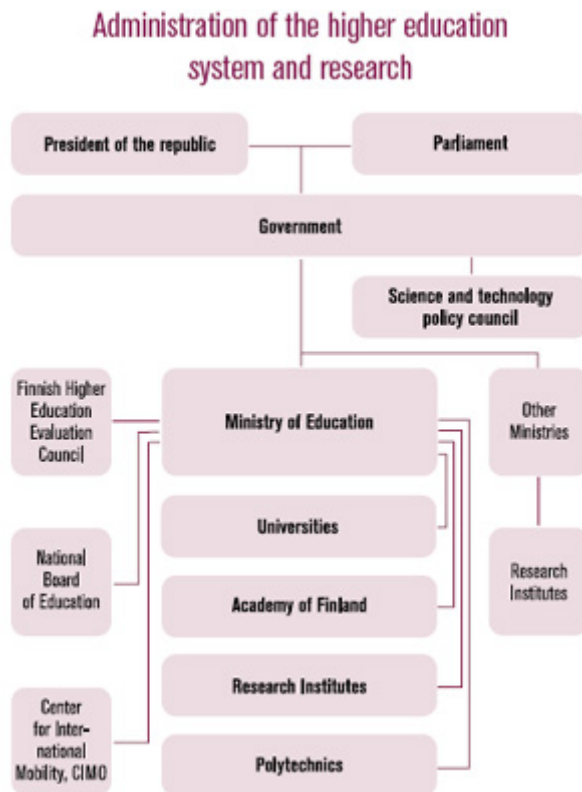
The Ministry of Education is responsible for the implementation of education policy thus formulated. The Ministry drafts educational legislation and prepares the state budget and government resolutions relating to its sector. Nearly all publicly funded education is subordinate to, or supervised by, the Ministry of Education. The education providers decide matters within this statutory framework.

The National Board of Education, which is subordinate to the Ministry, has many tasks relating to the provision of education and its development. For example, it draws up the national core curricula for general education and the qualification requirements for vocational education and training.

The education and culture departments of provincial state offices handle educational matters in regional administration and evaluate the regional availability and quality of education.

The Finnish tertiary education system comprises universities and non-university institutions, i.e. polytechnics. The Universities Act provides for the mission, overall administration and structure of the universities (Ministry of Education, 2005). There is a corresponding Polytechnics Act.

With regard to the governance of the whole higher education system, the following figure provides a general overview of the Finnish system.

Figure 5.1: Administration of the higher education system and research

This figure shows that the operation of higher education institutions is embedded in a structure of government bodies (Parliament, the Ministry of Education, some councils and boards and intermediary bodies).

5.1 Intermediary bodies

The intermediary bodies with relation to research, like the Academy of Finland and the Science and Technology Policy Council, have been described already in the previous chapter.

The Finnish National Board of Education (FNBE) is the national agency in charge of development of education in Finland. It is working under the auspices of the Ministry of Education (FNBE, 2008). FNBE is responsible for the development of pre-primary education and basic education, general upper secondary education, vocational education and training, formal adult education and training, liberal adult education (incl. folk high schools, study centres, summer universities) and extracurricular basic education in arts. Its main areas of operation are development of education, evaluation of education, information services and educational services

The Finnish Higher Education Evaluation Council (FINHEEC) is an independent expert body assisting universities, polytechnics, and the Ministry of Education in matters relating to evaluation.

The duties and policies of FINHEEC are governed by the Decree 1320/1995 on the Higher Education Evaluation Council and its amendment 465/1998, which stipulate the following duties for the Council:

- Assisting institutions of higher education and the Ministry of Education in evaluation.
- Conducting evaluation for the accreditation of the polytechnics.
- Organising evaluations of the activities of higher education institutions and evaluations related to higher education policy.
- Initiating evaluations of higher education and promote its development.
- Engaging in international cooperation in evaluation.
- Promoting research on evaluation of higher education, and
- Evaluation and recognition of professional courses offered by higher education institutions, and keeping a registry of them.

In addition, Under the Decree 548/2005, FINHEEC is in charge of the evaluation of HEIs in the autonomous province of Åland. FINHEEC also provides advisory and consultancy services in the implementation of evaluations, offers training seminars on evaluation, maintains a library and information service, develops evaluation methodology, and disseminates good practices to higher education institutions and the Ministry of Education. One way of developing evaluation methodology and disseminating good practices is to offer financial support to development projects of higher education institutions.

Finally, not reflected in the above figure there is KOTA which is a statistical database maintained by the Ministry of Education. It contains data describing university performance by institutions and by educational field since 1981. The universities themselves are responsible for accuracy of the data. The KOTA was established to give access to as up-to-date aggregate data as possible for educational planning, monitoring and evaluation. Another aim was to unify concepts and eliminate overlapping and doubling in data collection. The database is accessible in an inter-university network. For the purpose of updating, the exchange of information and other contacts, each university has appointed a KOTA liaison. The universities themselves are responsible for the accuracy of the data. The fact that the data are increasingly up-to-date and reliable has increased the usefulness of the database. KOTA has provided background material for annual negotiations on the universities target outcome, evaluations, university and Ministry of Education reporting, such as annual reports and development of the university and Ministry management information systems.

5.2 Universities

Though in Finland all universities are state-owned and subordinate to the Ministry of Education, universities are very independent in their internal affairs because they enjoy autonomy and freedom of research. Universities determine their own decision-making systems independently according to the Universities Act. Apart from legislation and the policy outlined in the Government Programme and in the development programme, universities are steered by means of performance agreements concluded by each university with the Ministry of Education. The foremost instruments in the university steering are resource allocation, normative regulation and information-based guidance.

The three-year performance agreements specify the objectives of university operations, such as degree targets, the resources needed to achieve them, monitoring and evaluation of target achievement, and the development targets. These objectives and targets are reviewed and confirmed in annual performance negotiations. During the negotiations, the universities receive feedback, first orally and later in writing, on their their previous year's performance and on development needs.

Regulating degrees and programmes

The Government Decree on Higher Education Degrees lays down the status of each higher education degree (Ministry of Education, 2005). It determines the degrees to be awarded in higher education, their objectives and overall structure, the responsibilities of different HEIs for different fields of education and the degrees to be awarded in these fields.

The universities themselves determine the student selection procedure and the intakes. In the performance agreement, the Ministry of Education and each university agree on the target number of degrees, which forms the basis for the budgetary funds allotted to the university. The new Government Decree on Higher Education Degrees promulgated in 2004 replaced 20 former field specific Decrees. All universities, including the art academies, have the right to award academic postgraduate degrees, doctorates. Being autonomous, the university may determine the content of the educational programmes and courses it offers and the course profiles.

In performance negotiations, the Ministry of Education may grant specific funding for a new educational entity, if this is in line with the national education policy objectives. In some fields (e.g. Technology), the Ministry approves and confirms the degree programmes offered by the universities. The purpose is to ensure national coordination and the quality of the programme within the scope of the university's educational responsibilities and the resources available to it. The new degree statutes are based on the principle that the Ministry of Education confirms and approves new Master's programmes with the aim of ensuring that the decisions are based on educational needs and have a high quality.

University autonomy

Universities have full freedom of research and teaching (Ministry of Education, 2005). The universities themselves decide on their research priorities. Similarly, the Ministry of Education takes these policy lines into account in steering the universities by means of performance negotiations and information-based guidance. The Academy of Finland has its own research policy which is realised through its research programmes and different instruments it uses to develop research, such as centres of excellence and graduate schools, and implements its own research priorities through resource allocation. The Ministry of Education allocates resources to research areas it considers important by means of national programmes and projects for infrastructure and laboratory development.

Universities recruit their own personnel, appoint professors and elect their rectors and senates, but the Ministry of Education signs collective agreements with the employee organisations. The agreements determine the minimum terms, from which the universities can deviate upwards if they so wish. A new salary system is envisaged to kick-in in 2009, which will give universities more latitude in differentiating salaries on the basis of good performance.

The government uses a formula in the allocation of budgetary funding. Core funding is mainly allotted to universities in a block sum, which the universities can use at their discretion. Only a fraction of the core funding determined in the performance agreement is earmarked for specific purposes, such as postgraduate education salaries or jointly agreed development targets.

Since August 2005, universities have been permitted to establish private companies through which they can further support their activities such as the commercialisation and exploitation of research. Universities continue to be accountable to the Government for their activities and the manner in which they use funding from the public purse.

The universities themselves make decisions concerning their facilities. They do not own the premises they use, most of them (85%) belong to the state company Senate Properties. Other building organisations are responsible for the remaining 15%.

Government permission is required before universities negotiate new rental agreements, which take into account rent adjustments and the size of the overall capacity of the state budget. This requirement to match rental costs and growth to the capacity of the overall state budget effectively limits unwarranted growth in rental costs. The Government determines the principles of rent collection. Since 1995 the universities have been able to decide independently on the construction of their facilities, which led to a building boom. The growing facilities costs have caused difficulties to some universities and led to demands for additional government funding. This is why a new procedure was adopted in 2003: all major construction projects need to be approved by the Government, and the state budget determines a ceiling for additional costs due to new investments in the university system. Universities may also rent premises in the commercial market but cannot own their own premises.

University autonomy and accountability have been under active discussion for several years. University autonomy has been developed systematically and extensively for years. The Development Plan for Education and Research 2003–2008 records the aspiration to further strengthen university self-government. The university has full autonomy in scientific research, independent jurisdiction in personnel recruitment within the scope of the collective agreements, full decision powers in hiring personnel, full decision powers in determining its own organisation and faculties, and freedom in teaching within the scope of the Government Resolutions concerning fields of education and the conferral of degrees and the procedure whereby the Ministry of Education approves degree programmes on the basis of quality and educational needs. Within their economic autonomy, universities can conclude agreements, acquire external funding and use the income generated through external funding. Universities have expressed their desire to be excluded from the system of auditing applied to other state agencies and from the supervision geared to ensure that budgetary funds are used according to the procedures and restrictions laid down in the budget. Universities have criticised the financial accountability regulations for rendering the content and form of bookkeeping and the closing of accounts too inflexible.

Universities have wanted larger discretion in the use of budgetary funds. So since the 2005 budget, universities have been given more latitude for setting up business enterprises and participating in business with a view to implementing the missions assigned to them in the Universities Act, especially the third mission of contributing to social development (Ministry of Education, 2005). Similarly, the universities have wanted greater freedom in charging fees for courses. Debates, for instance in connection with a national globalisation review conducted by the Government in summer 2004, have raised the question of fees charged to foreign students, the possibilities of business and industry to purchase degree education and the possibility of the universities to enter the international educational market.

University internal governing bodies

The Universities Act contains provisions concerning the tasks and structure of university administrative bodies (Ministry of Education, 2005). According to a recent amendment, university senates must include at least one member external to the university from 2005 onwards, whereas the former provision stipulated that the senate may include external members. The Act further provides that university administrative bodies must have tripartite representation, i.e. of teachers, other staff and students. In its information-based guidance, the Ministry of Education has advised universities to devise comprehensive quality assurance systems and describe the good administrative procedures they seek to implement. Otherwise the universities are subject to the principles and regulations governing public administration. Universities are autonomous institutions and have the right to disburse the lump sum budget they receive from the Government in accordance with their own decisions.

Universities may take decisions on their management structure, student admission policies, the nomination of their 9 Maakunta = a traditional county, not part of the official or elective administration; for a longer explanation see footnote in Chapter 3.3. academic and other personnel and the content of the education curricula for their academic programs.

Improving institutional management

In passing an amendment to the Universities Act in 2004, Parliament called upon the Ministry of Education to explore means of improving university management and management procedures. The amendment requires that the university rector has proven management skills. Information-based guidance, which is part of the performance steering of universities, has stressed university management for several years. The Ministry of Education seeks to step up strategic management in universities and calls upon universities to improve their strategic operations by means of extensive strategic planning. In addition to financing based on target outcomes, the financing model includes funding based on good performance and good quality, i.e. quality awards. Steering based on target outcomes and the strong stress on the level and achievement of targets have played a decisive role in stepping up university operations. Monitoring takes place through the KOTA database. In the early nineties, the Ministry of Education requested that all universities undergo overall evaluations of their operations and activities by 1997. In the performance negotiations the Ministry monitors the development measures taken as a result of the evaluations. The Ministry has also requested that the university management take the measures to be taken as a result of evaluation findings on their agenda. The need to increase the universities' competence in financial management and to improve cost calculation in university management has been intermittently raised by state auditors, as well as in university performance negotiations and agreements.

5.3 Polytechnics

Polytechnics are municipal or private institutions. All universities are state-owned but autonomous. The Ministry of Education steer the activities of polytechnics and universities by means of performance management.

The new Polytechnics Act took effect on 1 August 2003. According to the Act internal administration of polytechnics is managed by the board and the rector. The board is composed of representatives of the polytechnic leadership, fulltime teachers, other personnel, students, and local business and employers. The rector is appointed by the maintaining organisation. The maintaining organisation decides on strategic development of the polytechnics and adopts the action and economic plan and budget. The autonomy of the polytechnic vis-à-vis the maintaining organisation is largely determined by the decisions taken by the maintaining organisation concerning financing and key objectives.

5.4 Policy developments: Governance

Two big processes going on are related to the structural development of the higher education sector and to the university economic autonomy.

The aim of the structural development project is to increase the quality of research, international attractiveness and competitiveness. This requires the activities to be grouped into larger units, profiling of higher education institutions, networking and stronger internationalisation. The aim is therefore to get the higher education institutions, both universities and polytechnics to cooperate better both within each sector and across sectoral borders. The ministry has so far refrained from ordering mergers, but even those are encouraged.

The ministry currently has several committees discussing specific cooperation projects, e.g. the so called innovation university (cooperation of the Helsinki University of Technology, Helsinki school of economics and business administration and University of art and design Helsinki), also other similar projects exist. On the polytechnic sector, there are some mergers planned, e.g. the merger of Haaga University of applied sciences and the Helia university of business and applied sciences which should take place beginning of 2007, also others are planned. The structural development will be discussed next year as part of the performance negotiations with the ministry. (One thing, which should be noted, by the way, is that all the polytechnics changed their English names into universities of applied sciences. The universities and the ministry do not like it, as they think it is misleading, but apparently there is nothing they can do). Another interesting development is related to the economic autonomy of the universities. There have been two advisors appointed by the ministry thinking about how to increase the economic autonomy of the universities. They have published one report, and another one is due the end of this year.

6 QUALITY ASSURANCE

Different external evaluations have been carried out in Finnish Universities since mid-1980s, when the Academy of Finland launched evaluations of research. The Ministry of Education has organised discipline-based evaluations of teaching and initiated institutional evaluations since early 1990s. Already in 1986 a Government decision required that all universities introduce an assessment system producing adequate and compatible information about the results and costs of research and instruction. Now, the development of systematic internal evaluation is included in the performance agreements, which are made between the Ministry of Education and the universities as part of Higher Education governance steering system.

Education and training providers have a statutory duty to evaluate their own activities and participate in external evaluations (Eurydice, 2007/08). Evaluation is used to collect data in support of education policy decisions and as a background for information- and performance-based steering. Education is evaluated locally, regionally and nationally. The Finnish National Board of Education is responsible for the evaluation of the learners' achievements in the basic education (FNBE, 2008). Only one national test, the matriculation examination at the end of General upper secondary education, exists in Finland. Evaluation findings are used in the development of the education system and the core curricula and in practical teaching. They and international comparative data also provide a tool for monitoring the realisation of equality and equity in education. Evaluation plays a very significant part in the educational management system in Finland. National-level evaluations have focused on a broad evaluation of the educational system in terms of effectiveness, efficiency and economy. At a local level, the focus has been on evaluation of the quality of education, paying attention to the development of establishments' quality control systems and self evaluation tools. At a school-specific level, attention has been paid to the measures taken for improving the quality of education, and, lately, especially to improvements in teaching and to classroom assessment. In Finland the main focus of national evaluations is the efficiency and functionality of the educational system and the impacts of the education and training. Finland also takes part in international reviews.

The evaluation of universities and polytechnics is the responsibility of the Finnish Higher Education Evaluation Council (FINHEEC), which is an independent expert body assisting universities, polytechnics and the Ministry of Education in matters relating to evaluation (FINHEEC, 2008). The Council is attached to the Ministry. In general, vocational and adult education there is an Education Evaluation Council, which is an independent body organizing and developing evaluation and promoting research into evaluation. It serves the Ministry of Education, education and training providers and educational institutions. Its responsibility is to maintain a national network of evaluating institutions. Quality assurance focused in particular on the learning process and the student's role. Several evaluations relating to these themes were carried out exploring areas such as the role of students in assessment of the quality of teaching, planning the extent of e-learning and curricular development processes at universities, along with a benchmark evaluation of teaching development activities carried out at various higher education institutions.

Since 2006 progress is made in audits of the quality assurance systems of higher education institutions. For the purposes of auditing, the Finnish Higher Education Evaluation Council produced an Audit Manual, which outlines the background, objectives, focus areas and methods of audits, the principles of signing up for audits and follow-up procedures. During 2006, the Council published an audit report on the quality assurance system of a number of higher education institutions (Ministry of Education, 2007b).

International co-operation in terms of university quality assurance continued as part of the Bologna process. The universities' quality assurance systems and their international comparability were developed to ensure that they meet European standards by 2007. Also an international evaluation of doctoral education was completed and the evaluation report was published in January 2006. The results of the evaluations were useful in terms of developing university operations. In addition, centres of excellence in education, adult education and artistic activity were nominated for 2007–2009. The Committee for Development of the Evaluation System of Education and Training in 2007 continued the work it started in late 2005. The committee aims to evaluate the current status of evaluation throughout the education system and to make a proposal for organisation of external evaluation.

The country review of the Finnish tertiary education system commissioned by the OECD was completed in 2006, noting that the Finnish system was strong and provided a good foundation for future challenges (OECD, 2006). Publication of the review led to debates on implementation of its recommendations for Finland.

6.1 Finnish Higher Education Evaluation Council

In January 1996 the Finnish Higher Education Evaluation Council (FINHEEC) was established to advise the Ministry of Education and to assist the higher educational institutions with self-evaluation. The Higher Education Evaluation Council Secretariat assists the universities, polytechnics and the Ministry of Education in matters relating to evaluation.

The Finnish Higher Education Evaluation Council (FINHEEC, 2008) is an independent expert body assisting universities, polytechnics, and the Ministry of Education in matters relating to evaluation. The duties and policies of FINHEEC are governed by the Decree 1320/1995 on the Higher Education Evaluation Council and its amendment 465/1998, which stipulate the following duties for the Council:

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- Initiating evaluations of higher education and promote its development.

- Engaging in international cooperation in evaluation.
- Promoting research on evaluation of higher education, and
- Evaluation and recognition of professional courses offered by higher education institutions, and keeping a registry of them.

In addition, Under the Decree 548/2005, FINHEEC is in charge of the evaluation of HEIs in the autonomous province of Åland.

FINHEEC also provides advisory and consultancy services in the implementation of evaluations, offers training seminars on evaluation, maintains a library and information service, develops evaluation methodology, and disseminates good practices to higher education institutions and the Ministry of Education. One way of developing evaluation methodology and disseminating good practices is to offer financial support to development projects of higher education institutions.

Objectives

The aim of FINHEEC is the long-term development of higher education through evaluations. For this reason, FINHEEC:

- Supports higher education institutions while they design their own quality assurance and evaluation systems;
- Produces national data enabling international comparison of higher education institutions for policy makers, students, trade and industry; and
- Ascertains legal protection for students through evaluation.

To ensure quality, FINHEEC has formulated the following six principles to guide all its operations (FINHEEC, 2008):

- **Independence:** FINHEEC is independent of educational administration and institutions of higher education when selecting evaluation targets and methods.
- **Expertise:** The best available Finnish and foreign experts are used in evaluations. Planning and implementation utilize existing evaluation materials and research data. Peer review emblematic of higher education institutions is one way of ensuring expertise. External evaluation groups are independently responsible for the content of the evaluation reports.
- **Diversity:** Evaluation targets embrace diverse organizations and phenomena and this is reflected in the evaluation approach: methods, which describe the target from various viewpoints, and evaluation strategies, are used. The definition of quality is determined with a view to different disciplines and training sectors. With the help of evaluation by many experts, FINHEEC seeks to utilize the profit gained from shared expertise.
- **Interaction:** Institutions can influence the selection of targets, methods, and focus of evaluation. People at different evaluation sites and from different interest groups are invited into a dialogue. Thus, evaluation is regarded as a forum where different views and experiences are exchanged.
- **Transparency:** Evaluation aims, methods and results are public information and they are recorded in project plans and other documents.

- Impact: The aim is to provide institutions of higher education and educational policy-makers with tools to understand and improve their policies so that evaluations are seen as useful.

The evaluations conducted by FINHEEC can be divided into three rough categories:

- Evaluations of higher education institutions: audits of quality assurance systems of higher education institutions, and evaluations for the accreditation of the polytechnics
- Programme and thematic evaluations
- Accreditation of professional courses offered by higher education institutions

In choosing the targets of evaluation, FINHEEC applies the following main criteria: the programme or theme is significant with regard to education and social politics, and a rapidly growing, developing or problematic field in the field of higher education. FINHEEC can also make an agreement with the Ministry of Education on evaluation assignments as has been done with the selections of the centres of excellence in education and adult education in the university sector, and centres of excellence in education and regional impact in the polytechnic sector. Additionally, higher education institutions and student unions can propose suitable evaluations to FINHEEC. Moreover, FINHEEC conducts contracted evaluations in case they fit thematically into FINHEEC's strategy. In practice, contracted evaluations have concerned only higher education institutions that are not administered by the Ministry of Education.

Evaluation Processes

As far as evaluation processes are concerned, FINHEEC does not have a rigid, predetermined evaluation pattern that is applied in every project. In fact, the chosen methods can vary according to the target of evaluation and phrasing of evaluation questions.

In the beginning of each project, the objectives and implementation practices of the evaluation are defined. The point of view and suitable evaluation methods for the project are also chosen at this stage. When deciding both on the process and methods, FINHEEC actively pursues to take the special characteristics of the evaluation target into consideration in order to achieve a coherent evaluation scheme that corresponds to the evaluation needs in the best possible way. This includes analysing the perspectives of the higher education units under review. The following outline, however, is a basic pattern that most evaluation projects follow:

1. The Council makes a decision on an evaluation and appoints a steering committee.
2. The steering committee makes a proposition to the Council about the composition of an external evaluation team and prepares both a review and project plan.
3. The Council appoints the external evaluation team and approves the project plan.
4. The higher education institution(s) under review compile(s) self-evaluation reports to the external evaluation team.

5. The external evaluation team visits the higher education institutions involved and writes a review report.
6. The review report is published.

Evaluation Methods

FINHEEC uses a basic evaluation method, which is commonly used in international higher education evaluations, and which corresponds with the Recommendation by the Council of Europe (98/561/EC) of 24 September 1998. The method consists of four phases:

1. National coordinating body (in Finland FINHEEC)
2. Self-evaluation
3. External evaluation team, including an evaluation visit
4. Public final report.

The different phases are modified and specified in the course of the evaluation task. Evaluations can vary greatly, for example in how rigidly FINHEEC dictates the self-evaluation process. This on the other hand, has an effect both on how much the higher education institution has freedom in the self-evaluation process and how much latitude the external evaluation team has.

Additionally, the purpose of the evaluations can differ from development-oriented to accreditation-type of evaluation and ranking. The accreditation of professional courses represents the accreditation-type of evaluation, whereas the selection of quality units and centres of excellence is an example of ranking evaluation. These, too, follow the basic evaluation method with the exception that an evaluation visit is not included in the selection of quality units and centres of excellence. Besides and within the basic method, FINHEEC uses other evaluation methods, such as a portfolio analysis, peer review and benchmarking.

In the planning and conducting of evaluations, in methodological development and in follow-up, FINHEEC co-operates closely with the Academy of Finland. The Council also submits proposals to the Ministry of Education on centres of excellence in education and adult education to be used in determining performance-based appropriations.

6.2 Evaluation of Research

In the early 80s, the Academy of Finland commenced the project to evaluate different research fields.

This includes general evaluation work, evaluation of scientific disciplines and research programmes, developing research indicators and the evaluation of funding. Both foreign and Finnish experts are involved in the evaluation of quality, effectiveness and efficiency. The model for these evaluations came from the Swedish Natural Science Research Council, which had systematically made evaluations of the research projects it financed.

Researchers, research teams and entire research institutions are being evaluated according to the results they have achieved. Each scientific discipline has its particular characteristics and research culture. This is taken into account when the quality and relevance of research are assessed. The concept of quality has expanded, and no longer concerns only the academic and scientific content as such but also its social relevance.

To reinforce its own evaluation work, the Academy of Finland is intensifying co-operation with the Ministry of Education, the universities, and the Technology Development Centre of Finland (Tekes). The aim is to produce useful and reliable basic statistical data which allows comparison of the resources available to various fields of research, scientific publishing and other matters essential for research evaluation.

6.3 Policy developments: quality

Audits

Quality assurance is crucial factor for the construction of the European Higher Education area. With a view to enhancing quality assurance in Finnish higher education, the Finnish Higher Education Evaluation Council (FINHEEC) has developed a manual for the HEI audits, as Audit will be a central evaluation instrument in the future (FINHEEC, 2007). As such it has initiated audits of institutional quality assurance systems. The aim is to make sure that higher education institutions have quality assurance systems which support continuous development of their education and other activities and which fit the purpose, generate development measures and are internationally credible.

This handbook presents the principles of the Finnish audit model and its targets, criteria, methods and follow-up measures. In the audits, the universities and polytechnics receive feedback on the strengths and development needs in their systems. Additionally, the audit report records the conclusion that the quality assurance system meets the set criteria or needs to undergo a re-audit in two years. The Finnish audit model was prepared in cooperation with Finnish universities and polytechnics and their students in accordance with the European standards for quality assurance in higher education.

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