Oh Happy Days! - University Reforms in Finland

Timo Aarrevaara

Finnish higher education is a binary system comprising universities and polytechnics (also referred to as *universities of applied sciences*), all of which are engaged in both teaching and research. The higher education system provides a link between the national innovation system and regional development programmes. Government influence over policy programmes and initiatives is ensured because it is the predominant source of funding. The higher education system is characterised by a multi-level governance model, complexity in national decision-making and the need to serve a wide group of interests.

1. A long chain of reforms

It is characteristic of European higher education reforms that attention has focused on higher education structures. In the 2010s, however, it appears that the focus on higher education institutions has become more robust. It means that attention is paid more to the objectives and key impacts, as well as performance information and evaluation. This can be seen as part of a broader trend of society in which consumers and users of public funded services are exerting more and more influence. In this article I will examine how the University Act which came into force from the beginning of 2010 has changed the university system in Finland and how the reform seems to have affected the universities.

According to Finland's Ministry of Education and Culture, the goal for higher education reform is that universities should improve their capacity. This improvement is directed at capacity to react to changes in the operational environment, to diversify their funding base, to become competitive in seeking international research funding, to engage in international

co-operation, to undertake top-level research and define their strategic focus areas, and to promote quality and effectiveness as well as a stronger role within the innovation system (MinEdu 2011). These goals are broad, and the intention is to provide the universities with the concept to succeed in the coming decades. As no-one knows exactly what those conditions are, the Finnish response has been to increase the universities' administrative and financial autonomy, These are considered to be one way to solve basic problems inherent in Finnish university system, such as lack of dynamics and inefficiency.

The Finnish university reforms are results of a continuous trend, as universities have slowly evolved into their current independent status from 2010. From the 1970s up until 2009, all Finnish universities had been a part of the state administration, and their administrative status was as accounting units within the state administration. In the early 1990s, universities began to highlight performance management and performance information among their objectives, which has been one of the more visible means of creating their independent status. Nearly two years after the University Act came into force, it has already become evident at least in a limited way, how structural reforms have been realised in the universities. There were budget reforms (Higher Education Development Act 1987–1996), which transferred from line item budgeting to lump sum budgeting and from history-based to formula-based funding. Quality assurance had been a responsibility of higher education institutions, and the emergence of a national council responsible for quality assurance (FINHEEC – the Finnish Higher Education Evaluation Council) has increased transparency and accountability since the mid-1990s.

Change in the Finnish higher education system was realised quite quickly at this point. The higher education policy objectives were amended and implemented between 2008 and 2010, since the documentation on structural developments to define universities' financial autonomy and administrative status after the reform had been prepared. This was based partly on the 2005 resolution on the structural development of the public research system as well as the 2006 Country Report by the OECD and its recommendations for the development of the Finnish higher education system (OECD, 2006; Aarrevaara, 2007). Finland's reactions represent a European way of carrying out higher education reforms, which highlights increased emphasis on performance and outputs, and the introduction of systematic quality assurance activities and greater formalisation of roles and responsibilities. This concerns leadership in particular, giving more power to consumers and users of public goods, decentralisation of responsibilities from the central level, combined with increased institutional autonomy. These are the four basic dilemmas of European university reforms (Larsen et. al. 2009, 44-45).

The aim of the resolution on the structural development of the public research system was

to demand that the higher education institutions aggregate their resources into larger entities and boost networking, management and impact analysis. A goal relating to reform of state sectoral research institutes was established. It also demanded that the intermediaries such as technology and knowledge centres, development companies, science parks and business incubators, should intensify the cooperation between each other and boost networking with public research organisations. Strategic Centres for Science, Technology and Innovation were established as new public-private partnerships for speeding up innovation processes. The establishment of the national and regional innovation systems in the form of policies, organisation structures and funding programmes is increasingly creating infrastructure for partnerships. Key players in the innovation system are the Ministry of Education and Culture, the Ministry of Employment and the Economy, the Science and Technology Policy Council of Finland, the Academy of Finland, the Finnish Funding Agency for Technology and Innovation (TEKES) and the Technical Research Centre of Finland (VTT).

The innovation system is the essential starting point of the Finnish university reform. Universities are part of the innovation system, in which case they are dependent on diverse funding, research networks, co-operation with other higher education institutions as well as industry and public research organisations. They share research infrastructure with all key players of the innovation system.

Universities now need to adopt a 'management by information' approach, and in particular, they need to develop better quality assurance systems. These requirements present a challenge to universities. An important part of the quality assurance issue is the responsibility of the academic profession, particularly because of major governance changes effected by the new Act. Since the start of 2010, there has been an increase in the presence and role of external stakeholders on universities' governing boards, and university staff ceased to be civil servants. This new situation in decision-making has not gained wide approval from the academic profession. Rather, first experiences of new University Act of 2009 brings evidence that regulatory and rule-setting stakeholders indirectly influence the science system and the conditions under which stakeholders become salient (Benneworth & Jongbloed, 2009).

2. What is happening to the university community?

For the academic profession in Finland, the most important change during recent decades has been that universities became independent legal entities, separate from the state administration since January 2010. Prior to this, change had been a long-standing debate on the role of the universities in the education system and its relevance in society. The

government has persistently called for universities to develop discipline-based activities, so that universities will be better able to respond to a changing environment. Universities are asked to define their public role and in this sense, and to improve their strategic focus areas. The Ministry has also encouraged universities to diversify their funding base. In addition, universities as organisations funded predominantly from the public purse, have been directed to increase the role of stakeholders within decision-making processes. All this should be reflected in the quality and effectiveness of research and teaching as well as in the dynamics of the higher education system and institutions' performance. Expectations are placed on the strengthened universities role within the innovation system.

It is expected as a result of these reforms, Finnish universities would act as a stronger player in the European and global education and research market, and that would also affect the academic profession as a key player within these structures. Among the other reasons behind Finnish higher education reforms are improved rates of access to higher education available to newer generations, higher demands for openness and transparency on the part of publicly funded operations, as well as the modernisation of the operating models of higher education institutions. The need for higher education reform is also in the substance of academic work. The reasons for these reforms are partly domestic. In addition, there has been a saturation of rigid structures and too high a proportion of shared decision-making. The same phenomena have been verified in some other European countries, such as in Austria (Pechar 2010, 15-16).

The government now encourages stronger profiling so that each university emphasises its activities in research, teaching, commitment to 'working life' and regional development.

The University Act of 2009 can be seen as a response to these demands imposed on universities. From the beginning of 2010, Finnish universities became autonomous bodies governed either by public law or as foundations subject to private law. This has ushered in a new era in which universities are responsible for their actions, including the possibility of responding to a changing environment and modifying their activities. To this end, the Ministry of Education and Culture now requires universities to profile focus areas in research, teaching, commitment to work life and regional development.

There is clear evidence of the trends in higher education reform in Finland. Change in the governance model is taking place, moving it from the collegial to the professional form, at least to a limited extent. Governance arrangements changed in several ways, and there are now two university models, because independent legal entities can be either institutions subject to public law or foundations subject to private law. Their governance arrangements include smaller university boards with a mandated minimum number of external members. Since 2010, at least 40 per cent of the members of the university boards are required to be

external, and university boards are built more in the managerial direction than under the previous University Act. The ownership and management of university buildings changed to a system whereby universities hold majority ownership rights, compared with the former government 100 per cent ownership by the state (Aarrevaara, Dobson & Elander 2009). These new arrangements for managing real estate policy in the university sector are related to accounting structures, and not discussed in this paper.

Academic leadership still has a strong impact in Finnish university governance. University governance has changed in such a way that the traditional tripartite system in decision-making is compensated for by stakeholders' growing role. These reforms are also changing the status of academics in universities. The 2009 University Act transferred changed the position of members of the academic profession from being civil servant status to the general form of the employment. At the same time, the incentive system has changed, and is now a reward-based system. This shift of authority to approve staff appointments has been taking place since the late 1990s as appointment of permanent professors in Finnish universities, which earlier was carried out by the head of the state, the President of Republic (Act 648/1997, 27.6.1997).

Higher Education reforms can be seen as part of the first phase in the reform of governance structures, but the effects are broader. It is important to see the effects of academic work in a context wider than governance structures. In fact, structural reforms can be seen as a result of a long-term trend, as the work of universities has changed significantly. Establishment of the Finnish polytechnic sector in the early 1990s significantly increased the responsibilities of teaching, and also the university sector grew. Therefore, academic work is still largely subject to the same expectations as in the past, even if there is need for change in the mode of operation.

The most difficult changes for the University community have probably been the internal structures and decision-making. When a strong idea of the university based on the Humboltian model is compensated for by a modern organisation, it has reduced the importance of collegial decision-making. With at least 40 per cent of the university board members now being appointed from outside the university community, the increasing role of external stakeholders is clear (Aarrevaara et. al. 2010).

The universities have been modifying internal structures since the 1990s, but the tripartiate decision-making model no longer exists in the way it used to before January 2010. Until then, professors, other staff and students had their representatives on all major decision-making bodies. The university community is represented by the University Collegium, which decides on the number board members and elects the external as well as university community board members and also approves the annual accounts. However, the University

Collegium's role is much less active than the Board's. Compared with the previous legislation, the new Act allows external stakeholders to have a stronger voice and has made their formal opportunities to participate in decision-making for internal stakeholders weaker than before.

In Finland, the Academic community is still strong, and expectations of collegial decision-making are high in public debate. In practice, the universities have formed governance models in a way that they are bottom-heavy with strong academic units. It does not leave room for tripartite decision-making the same way as before. The formal decision-making seems to have changed to the opportunities affecting the strategy, the close involvement in the quality system as well as the ability to formulate research and teaching content as a part of academic freedom. These opportunities differ much from what the previous state bureaucracy model guaranteed.

3. Finland will continue to have a binary system of higher education

By the end of the 1980s, universities in Finland were mapped as a part of university system and all the universities were enacted by separate Acts. Later, by 1997, the universities were named under a general University Act (§ 1997/646). It was clear that massification could not take place in traditional universities with strong emphasis on research. Establishing the polytechnic sector from 1991 in Finland has meant a major diversification of the academic profession by creating a binary system based on both universities and polytechnics. The trend for diversification in the Finnish binary system is stratified with institutional diversity rather than programme diversity (Teichler, 2008). The Finnish system is not formally but rather informally stratified. There is no formal stratification between universities and polytechnics, but they have a different role. Universities offer similar content in educational programmes in different parts of Finland. It is clear, that there are differences in practice, because educational programmes are implemented in very different environments and in different capacities. Stratification is evident in disciplines with strong demands being placed on the research infrastructure, in cases in which research infrastructure determines the direction of research. Universities in Finland have not necessarily taken this reality into account. The main research funding body, the Academy of Finland emphasises that infrastructure should be incorporated as an integral part of universities' and research institutes' development strategies (AKA, 2009).

The differences between the two sectors are clear in terms of their different identities. The division of labour between universities and polytechnics is clear in the innovation system, for example. Polytechnic R&D and university research infrastructure are important

for small and middle-sized enterprises that have marginal industrial research structures and capacity. Universities' research responsibilities are extensive, and the polytechnics on the other hand have a clearer duty to respond to the needs of 'working life'. This is also reflected in research that is carried out in both sectors. Universities' first cycle degrees (the bachelor level) do not guarantee access to the labour market, and almost all university students must complete a second cycle master's degree programme. The corresponding first level of a polytechnic degree has high status and acceptance in the labour market, and only a minority of polytechnic students continue to second cycle degrees. Finland is one of the OECD countries seena rapid increase in graduate rates due to harmonisation of higher education in European countries (OECD, 2011). A peak of amount of second cycle degrees was seen in 2008 with almost 22 000 graduations at the master's level.

European higher education is changing, and the pressure for this change is also reflected in the development of Finnish higher education. The trend from the Nordic perspective is also reflected elsewhere in this book concerning the European Higher Education Area's (EHEA) expectations. European national higher education systems are undergoing a process of integration, which is visible in the elements of harmonisation of degree structures of the Bologna Process as well as operating to harmonise degrees. Although before the 1990s higher education was not at the heart of European integration, it is now the leading themes of integration and at the same time an important part of the European knowledge society development. The European Union relies on higher education and research relevance to promote the development of society, which is also reflected in significant investment in the sector's development.

This development is also seen as leading to reduced state control and a shift towards market control. The new context of European higher education requires improved competitiveness between the universities, and they have to compete for students and staff. Universities may not be effective actors in this environment, because the rigid office structures and the strong legislative basis have restricted universities' abilities to change rapidly. Rapid changes would require professional management and leadership, but European universities also have strong collegial traditions of governance. In Finland for example, academic leaders spend time with their colleagues, share common values and reinforce those values in loops of interaction in collegial systems (Aarrevaara 2010). At the same time, promoting the dynamics of the university institution would require extensive freedom of operation for the different actors applying the means of entrepreneurial and accountable operating culture.

It is quite reasonable to say that European universities have changed the traditional functions of the above-mentioned factors. A task for university in the European knowledge

society framework consists of not only of knowledge production, knowledge dissemination, and knowledge transmission in the technical and social innovations. These tasks are also reflected in the higher education governance models. For Finnish higher education, European integration has been seen as a natural step towards a more accountable and transparent mode of higher education. In Finland, it means that the higher education system in the 2000s consists of several actors with innovation systems, funding, and national policies. Compared with the situation 30 years ago, it is now characterised by multi-levels of administration, as the national decision-making is complex and there are strong networks linked with the academic community.

Under current governance arrangements, polytechnics fall under the auspices of *licence holders* that are local government municipalities or federations of municipalities. Higher education institution licences in the polytechnic sector have so far been based on authorisation by the government, but in the new system the aim is to define the role of all these institutions in the Polytechnics Act. In the subsequent funding system, there will be a stronger element of quality. As a result, the polytechnic sector's financial and administrative autonomy will be analogous to that enjoyed by the universities. The establishment of a polytechnic sector has realised the massification of Finnish access to higher education and therefore been closely related to social equity (see. Brennan & Teichler, YYYY). Higher education in Finland will continue be divided into two sectors in the future, but conditions that will lead to future mergers between proximate universities and polytechnics seem to be increasing.

4. Differences within the university sector are significant

In the end, it is difficult for higher education institutions to keep a high level of performance and to meet a wide range of responsibilities if new resources are not made available. There are no guarantees that universities can rely on the stability of public funding. This concerns both multi-faculty research universities as the small and specialised universities.

Figure 1 indicates that the University of Helsinki has a central role to play in the entire Finnish university sector's development. It accounts for the largest portion of overall funding, drawing about €221 million of the share of state budget funding and building investments. The next largest is Aalto University, whose accounts had not been published at the time this text was written. As Table 1 shows, the University of Helsinki represents about one-quarter of the funding of the whole Finnish university sector.

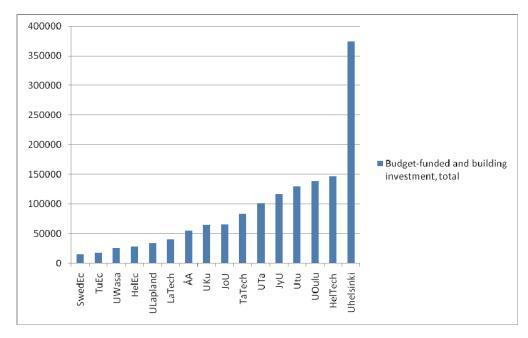


Figure 1: Annual budget funding and building investments of Finnish Universities in 2009 (1000 €, MinEdu 2010)

Table 1: The share of University of Helsinki in salaries, premises expenditure and other operational expenditure, 2009.

	Salaries	Premises expenditure	Other operating expenditure	Total
All Universities	970,764	315,378	224,374	1,510,516
University of Helsinki	236,414	82 655	55 277	374,346
University of Helsinki %	24.4	26.2	24.6	24.8

(Source: KOTA)

The above information on the potential of the university education and research is also reflected in Table 2, which show the share of external funding. Again, the University of Helsinki is responsible for about a quarter of the Finnish university sector. It is clear that research universities are successful in obtaining external funding, or at least rather better than the creative arts and others than multi-disciplinary research universities.

Considering public benefaction and private support of universities, the most generous donations are targeted at the large, multi-faculty universities and to small specialised universities. Of the universities organised as institutions subject to public law, the most

successful is Hanken, the Swedish School of Economics, with donations of over €12 million. The universities as foundations subject to private law, however, are in a different league. The two universities in this category attracted about three quarters of the university-targeted donations in 2010.

However, it is worth noting that the donations received by public universities have been built into the capital of universities rather than to cover operating expenditure. Eventually profits from these capital funds will be transferred to operating expenditure but activity is not yet very high. It will take several years before the funds have accumulated in such a way that they have a real significance and become sufficient for universities to use them to support their strategies.

Table 2: External financing in annual accounts (1000 €) of Universities in 2009#.

		Academy						Other
	External financing,	of Finland,	Tekes.	Domestic	Other Finnish.	EU financing,	Foreign	Foreign financing,
University	total	total	total	companie s, total	total	total	companie s, total	total
Helsinki	220572	55570	9887	23668	106933	17262	716	6536
Jyvaskyla	46857	15243	4601	2175	18451	5552	448	387
Oulu	64578	14612	11522	6131	13450	16466	1163	1234
Joensuu	23705	6259	1373	650	8530	6588	19	286
Kuopio	55241	8012	3670	3338	28943	9435	1201	642
Turku	65137	20512	4130	3035	28149	7123	1179	1009
Tampere	59852	12229	4740	8233	21668	4630	7154	1198
Åbo Akademi	36180	7470	5402	3865	16684	1052	483	1224
Vaasa	5433	540	781	947	2189	946	0	30
Lapland	10233	767	463	113	4113	4514	0	263
Helsinki U Tech.	113165	19904	31424	25588	25650	8442	1309	848
TampereTech.	50329	7110	16370	11698	10077	3916	292	866
LapentantaTech	26177	2039	4993	8295	7536	3083	124	107
Helsinki Economics	18833	1347	2920	1692	10556	2203	4	111
Hanken	7418	677	951	2180	3459	61	0	90
Turku Economics	8380	1166	1155	1615	3175	1187	1	81
Sibelius Academy	3264	406	51	0	2484	323	0	0
Theatre Academy	1212	154	46	241	729	20	0	22
Industrial Arts	8062	663	1156	1241	4174	794	0	34
Academy Arts	138	68	0	4	40	7	0	19
Total	824766	174748	105635	104709	316990	93604	14093	14987

Source: KOTA database 2011

#Note: there have been institutional mergers that have reduced the number of universities from those shown: From 1 January 2010: Helsinki University of Technology, Helsinki School of Economics and the University of Industrial Arts merged to become Aalto University; The Universities of Joensuu and Juopio merged to become the University of Eastern Finland. Additional mergers are scheduled for 1 January 2013: Sibelius Academy, Theatre Academy and the Academy of Arts.

The Finnish university reform is still with the four basic dilemmas of European university reforms (Larsen & al. 2009). The current financing system in 2011 emphasises the degree objective, which is justified from the societal impact of universities point of view. This objective, however, creates an interest for universities to maintain the current objectives and structures. The current funding system does not fully support the Ministry of Education and Culture's desired state for 2020 for university reform, which demands a better, more efficient and international university system with a stronger impact on society and a better defined profile (MinEdu 2011). It is quite clear that this desired state and these objectives for the university financing model from 2013 are being criticised by universities' scholarly community and non-academic staff. One of the arguments in this criticism is that the indicators are unclear, and that they do not take into account the Finnish research focus. This is seen as a threat to basic research and working conditions of scholars focusing this field.

The key means for the Ministry to enhance university reform is through the financial system, in which objectives such as quality, performance, and internationalism are emphasised. This is a clear change to the current system, which emphasises the number of degrees awarded. The Ministry's working group (MinEdu 2011) has proposed a new model under which education and research will constitute three-quarters of the basic funding of universities. Education and science policy objectives, in turn, will form one-quarter of the basic funding. The number of degrees awarded would still among the criteria, but for example, academic publications would be afforded a clearly more prominent role.

The new system would take into account the sector-specific costs for the arts, science, technology and medicine. This does not, however, exercise in full, but the number of staff targeted to these disciplines will be received as a staffing factor rather than results. This is due to the fact that the financial system in the future negotiation process between the university and the ministry will focus more on strategic issues. Thus, the detailed objectives of the number of staff is not set for any discipline by negotiations between the Ministry and universities, unless there is a professional sectors on the specific need.

Ministry is also emphasizing the profiling of universities, and the implementation of strategies based on the funding proposals are coming into a new actor of financial system. Unlike in the case of research, the implementation of the strategy indicators are not, at least initially to be produced as part of a new financial system. Universities will be still integrated national tasks as a part of financial system. The reforms will extend to more strongly with academic departments, the new funding will come into force in 2013.

The target for the Ministry is year 2020, when the changes in financial system are verifiable. Overall, the financial system should take into account the greater university-specific strategic objectives, factors in the quality and effectiveness. The view is is not a

contract for certain year, but the long-term effort to create a university results, the following support systems. For this purpose, for example, has built a Finnish Publication Forum, a quality classification of scientific publication channels, as well as graduate students in the feedback system. the results of FPF will be published in February 2012.

The new funding system will affect the contracts between the universities and the Ministry, and define the way the current system of performance negotiations. Internal allocation of funding will remain a model of based on University autonomy. However, it is likely that universities have a greater interest in monitoring the financial elements of external funding to internal funding systems. Currently, universities have a wide range of practices in this regards.

Conclusions

As is the case in all countries, systems of higher education are subject to change by evolution and through legislative reforms. In Finland's case, 2010 was the first year of operation of a new Universities Act, enacted by the parliament in mid-2009. In the interests of improved transparency, participation, accountability, effectiveness, relevance and congruence with government policy, the new Act has strengthened the universities' financial and administrative autonomy and brought to an end the long era in which universities were treated as government accounting units within the national administration (Aarrevaara, Dobson & Elander, 2009). The government will monitor the implementation of the University Act by 2012. In addition, the government resolution on the structural development of the public research system has not been implemented completely. Thus, it is likely that reforms will continue through the 2010s.

Finnish university reforms are an example of political and collective action as well as evidence based solutions and survived in the political arena (Ferlie et. al., 2008). The restructuring of Finnish universities is ongoing, and this is necessary in particular because of the global economic downturn. The current recession has cut state funding for universities for 2012 and ended a period of financial growth following the introduction of the new University Act. First, however, much more has to happen at the practical level in universities. Higher education institution-level reforms have to be displayed in such a way that the leadership roles and responsibilities become clearer and the result is a specialisation, focus and division of labour between individuals and institutions.

Over the next four years, reform of the polytechnic sector will be removed from the local government umbrella and will become independent legal entities - the same way that the new Universities Act formally removed universities from the state administration from 2010. This

particular higher education reform is necessary as the government plans to reduce the number of municipalities in next three years. Some polytechnics have been outside the municipal sector since their establishment, but the new polytechnic reform will move all polytecnics to having a common governance status. As a result of these reforms, the polytechnic sector will change structurally, but still remain as a broad system.

Cultural change can take a surprisingly long time, even perhaps generations. Relationships between the state and the academic profession have not been major research topics, and this may be a key role in the realisation of the reforms. How quickly will these changes be reflected in the academic profession's ability to accept reform? Will universities be able to build management systems and incentive systems to achieve the objectives by the end of 2012 or, realistically, by the 2020's? The acid test for the academic profession's ability to act to broaden the funding base of universities. In the current implementation stage, it would require a credible ability to create a broader, more international and more interdisciplinary research and education. In this respect, the challenges for Finnish universities are global.

References:

- Aarrevaara, T. (2007) Enhancing Universities in Finland. The Journal of Finance and Management in Colleges and Universities. Vol. 4.
- Aarrevaara, T., Dobson, I.R, & Elander, C. (2009). <u>Brave New World</u> Higher Education Reform in Finland. <u>Higher Education Management and Policy</u>. 21(2), pp-pp.
- Aarrevaara, T., Dobson, I. R. & Pekkola, E. (2011): CAPtive academics: an examination of the binary divide in Finland. In W.Locke & D.Fisher (eds.): Changing Governance and Management in Higher Education: The Perspectives of the Academy. Spinger.
- Aarrevaara 2011. Akateemisen johtamisen mahdollisuuksi (Possibities of Academic Management). In: Hyyryläinen, E. Viinamäki, O.-P. (eds.): Julkinen hallinto ja johtaminen. University of Vaasa.
- AKA 2009. The State and quality of scientific research in Finland 2009. Publications if Academy of Finland 10:2009.
- Benneworth, P. & Jongbloed, B.W. (2009). Who matters universities? A stakeholder perspective on humanities, arts and social sciences valorization. Higher Education 59, 567-588.
- Brennan, J. & Teichler, U. (2008). The future of higher education and of higher education research Higher education looking forward. Higher Education 56.
- Ferlie, E. & Musselin, C. & Andresani, G. (2008): The steering of higher education systems: A public management perspective. Higher Education 56.

- Larsen, I.M. & Maassen, P. & Stensaker, B. (2010): Four Basic Dilemmas in University Governance reform. Higher Education Management and Policy 21:3.
- MinEdu. (2010). KOTA online database, Ministry of Education and Culture.
- MinEdu 2011. High-quality, profilised and effective international university Proposal for a reform of the university financing model from 2013. Reports of the Ministry of Education and Culture, 26:2011.
- OECD 2006. Thematic Review of Tertiary Education. Finland Country Note by John Davies, Thomas Weko, Lillemor Kim and Erik Thulstrup. September 2006.
- OECD 2011. Education at a Glance. OECD Indicators.
- Pechar, H. (2010): Academic Middle Managers Under the New Governance Regime at Austrian Unviersities. In: Meek, V.L. et. al. (eds.): The Changing Dynamics of Higher Education Middle Management. Higher Education Dynamics 33. Springer.
- Teichler, U.(2008): Diversification? Trends and explanations of the shape and size of higher education. Higher Education 56.