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An emerging economy of publications and citations

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Abstract

The Humboltian image of an independent academic is challenged by the recent developments in the governance of universities. Digital technology has produced new tools for the surveillance and steering of researchers' work. Researchers become actors in an economy based on the disembedded symbolic tokens of publications and citations. Incentives are produced, which make researchers subservient to the steering system. Bibliometrics offers the technology, which is used. The general idea has its worldly application, which is forming the rules for what is supposed to count as academic knowledge, i.e. a privileged form of knowledge in society generally. Educational research is in this essay used as an example, where some possible implications is projected.

Keywords: research policy, bibliometrics, educational research, globalization, citations, publications university ranking

Five years ago, I was contacted by a Norwegian colleague, Aasmund Strømnes. He wanted help from the Nordic Educational Research Association (NERA). As editor of the Scandinavian Journal for Educational Research, he was frustrated by the difficulties in being included in the Social Science Citations Index, one of the indexes in ISI. He wanted me, as the chairperson of NERA at that time, to write a letter of support for his efforts. I did not know much about how such indexes were constructed, I must confess. I realised that none of the journals in educational research from the Nordic countries were included in this index. I found that strange. The number of educational researchers in the Nordic countries is huge. Congresses like this can bring up to 800 researchers together. That none of the journals serving Scandinavian researchers was worth being recognised in an index like that seemed unlikely. It was as if all these researchers were second-class. However, Aasmund Strømnes cooperated with a representative of the journal's publishing company. He sent me an e-mail, explaining the situation:

Dear Stefan

Of the 92 journals ranked by ISI in the Education and Educational Research category: 63 are published from the US, 24 from the UK and 5 from Europe and the Rest of the World.

It just shows that in the US they only really buy their own journals, so academics only read them and therefore write for them and cite these journals. Hence the list is overbiased toward the US. It is something I have complained about for years.

XXXXX (e-mail 18th september 2003 - various misspellings are in the original)

I was struck by the extreme disproportion of the selection in terms of geography. I think this e-mail was the starting point of my own involvement in this issue. What I did not realise five years ago was how this issue about indexes and publications would grow. Measurements of our work, based on publications and citations now exist and are being developed in every Nordic country. The importance of the issue has changed from being a question of respect into an issue of our daily bread. Now I suspect that measurements based on this index or similar constructions will be of importance for our own working conditions in the future. It will probably also influence the kind of research we will do. It seems to be worth some critical comments from the perspective of an educational researcher in the Nordic countries, trying to understand the consequences. Nobody will do it for us – not least it is obvious that other research areas' interests dominate when such uniform systems are implemented.

The emerging “economy of publications and citations” is so far only a slice of the larger cake, from where the material resources for academic work are generated. However, it is significant as a new kind of rule, with new kinds of consequences. The future will tell us how much of the cake it will be.

Defining the economy of publications and citations.

What do I mean by an “economy of publications and citations” or EPC, as shorthand for a somewhat heavy phrase? Calculations based on empirical data on researchers' ways of publishing their work and how they refer to other researchers are the basis for research – bibliometrics or scientometrics. This is very interesting research. It gives crude indications, but interesting insights into general patterns of how researchers publish and relate to each other.

But such calculations nowadays also operate in two other ways:

The first is the use of the calculations to allocate research resources – money and merits and power. These calculations thus produce winners and losers - not only among individuals, but also in terms of approaches, research groups, disciplines, faculties and universities. It indirectly also produces winners and losers among continents and even languages, which are used to communicate research. The calculations will therefore reconstruct the landscape of research, since they are a tool for distributing resources, i.e. money: what will be researched, how it will be done and who will do it.

The second use of such calculations is to produce incentives. As with grades at schools, one can predict that the measurements will become the real aims for those concerned. The constructions of specific incentives are tools for rulers to monitor researchers' wills. The most important consequence is that the universities, when faced with the measurements, e.g. international ranking of universities, are creating “second-order” incentives, i.e. translating what is required from the universities to incentives, which make individual researchers adapt. One cannot, because of this, identify clear boundaries between calculations, which measure at the university level as well as departments and research groups or individual researchers. The constructions of the measurements indicate to researchers what they should do. In this way researchers are tempted to change the landscape themselves. This not only influences work, which is directly related to such resources, but indirectly also research in general. The

constructions of the measurements invite researchers to create specific new habits – where they should publish, what form of publications they should choose. They also indicate to them what kind of texts they should write. And finally: They influence what kind of research will exist.

Desires

Different desires are aroused: Many researchers want to be successful, want research resources or simply want to keep their jobs or be promoted. University managements want to keep their university well resourced, but also important and prestigious, keep their jobs and so on. Governments want to demonstrate the success of their policies. They often imagine themselves as being in a geopolitical competition with other countries: they want to be top scorers. It is like league tables in football. It is difficult to resist such desires. The uniformity of the incentives undermines academic writers' own judgements about the optimal choice of publication strategies in their research. It is They are already fixed in a uniform system. If your publication strategy does not fit the system, your research will suffer. It will probably also negatively impact on the destiny of journals and conferences. Why publish in a journal, which does not give you any rewards? The measurements will not be sensitive to the specific conditions for different kinds of specialities. The professional discourse on quality as something that is visible by reading research texts is challenged by new concerns about the size of texts (preferably not more than 15 pages) and tactical moves to maximise output, which counts in EPC (choice of journals). Geopolitical consequences in terms of domination and subordination are a major aspect. This is certainly not a case of fair globalisation.

On the other hand: How much these calculations will actually change the landscape can only be judged in hindsight. In research areas like medicine we can see how an economy of publications and citations have a dominating position in academic work. Are we going to follow in their footsteps?

In the Nordic countries

How, then, is the economy of publications and citations implemented in the Nordic countries? Different kinds of systems are actually used or are underway in most countries. We should look more closely at some of them.

One kind of system is the one where publications are the basis of calculations: the focus is on the act of publishing a text. At my university, they have constructed a publication database, which makes every researcher's publication output public. This can be used as information about the research, but is also explicitly used when salaries are negotiated. Our vice-chancellor can also submit a proposal to "a bibliometric examination" as a basis for decisions about priorities within the university. Thomson Corporation (2008) provides ISI – Web of Knowledge, a database, which not only measures publications but also citations, which are traced and used for calculation. ISI only cares about what is cited or published in a selection of academic journals. Citations in books do not count. When citations are measured, the focus is on the action of significant academic colleagues: that they put your text on their reference list. Here, you have to hope and wait for unknown researchers to find your work worth referring to for some reason. Calculations of citations are thus very different from measuring publications, not least from the perspective of researchers' control of their own destiny.

There are also differences between these modes, in what researchers should spend time on: When citations are focused on – spend time on writing only articles, which are popular among your colleagues – not necessarily many. You can spend time on marketing the articles instead of writing many articles. When publications are measured – write many, which pass the gatekeepers, i.e. reviewers and editors. When both are measured, you have to speed up. The groundwork of tracking citations is done by some companies, but bibliometrics consider Thomson ISI as the only alternative.

There is also a national economy of publications and citations. Governments establish systems where they use various kinds of calculations as tools to govern the local level of higher education. This is intended to produce competition between the universities about how much money they will get for research. In several countries, a certain share of the research resources from the state is allocated on the basis of publications or citations, or both.

The system used in Norway for some years now is quite different from the Thomson ISI system. In Norway, they focus on the act of publishing a text, not on being referred to (Sivertsen, 2007). However, it is also a grading system, where the chosen “publication channel” is graded - if it is books published by prestigious publishing companies or if it is articles in prestigious journals and so on. The points thus collected result in distributing some of the resources to the departments in universities and university colleges. These points are also used to distribute some bonuses to individual researchers at the local level. In the Norwegian system, books as well as articles and dissertations are recognised. What is also significant in the Norwegian system is that Norwegian researchers have a say about the selection and grading. This is limited by rather strict regulations, but it is an arena for professional research policy-making. The national elite in a discipline therefore influences the selection and grading – they have some control over their disciplines. In ISI, control of the rules of the game remains in the hands of a corporation.

Denmark is currently developing a system, which could be decided on this autumn. Their system seems to be a variant of the Norwegian system, i.e. based on publications rather than citations. In Denmark, committees are currently constructing the grading system – constructing an “authority list” of how valuable it is to publish in various ways. At the local level, very elaborate systems to give points to various forms of publishing have been proposed.

The University of Iceland has a formal system of performance-based incentives, which form the basis for salaries (Sigfúsdóttir et al., 2005, p 76). This is based on ISI to a great extent, but here, both publications and citations are calculated.

The Ministry of Education in Finland uses an elaborate database (KOTA) of all kinds of parameters as a basis for decisions about the allocation of resources to the universities (Undervisningsministeriet, 2008). One is publication with a separation between international and national publications. There are discussions about a proposal to use a EU system.

Sweden might have a new system for allocating research money to local universities. A governmental investigation has been published, where a system based on Thomson ISI has

been proposed (SoU, 2007:81). Universities will get 10% of their research resources from the government based on their researchers' presence in the journals Thomson ISI have selected. The proposed system is one where researchers within a disciplinary field in each university or university college is compared with a international community of researchers in the same field. These calculations are compiled into a figure (field normalised citation score), on the basis of which money should be distributed to each university. In such a system, there will be no control by the disciplinary elites over the rules of the game, they will be in the hands of experts with bibliometric training operating within the framework of what Thomson ISI provides. It remains for the government to decide, i.e. we do not know for sure if this proposal will be realised.

Thomson ISI through university ranking lists

The Thomson ISI measurements also impact at the local level through one of the most influential university ranking system on the global level – the Shanghai list (www.arwu.org/rank, 2007, Cavallin & Lindblad, 2006). We can see how the ranking of universities becomes important to decision-makers in all countries. Universities are struggling to adapt to a global order. Not least this is about each university's brand name – which is becoming more and more important in the new business orientation at the universities. Many even hope to transform universities into an export industry selling university education to rich students in poor countries outside the EU (Larsson et al., 2005). In this context, ranking will be important for marketing. This mobilises university management on the local level to construct incentives that move the university upwards in the ranking. When universities are ranked by the Shanghai list, the Thomson ISI index is 40% of the basis for the ranking and 20% is based on publications in the journals Nature and Science. Not many places can hope to score on the 30% of the criteria, which are Nobel prizes and Field medals – Field medals are something like a Nobel prize in Mathematics for young researchers. If universities want to promote their position, they should obviously focus on publication of articles in the journals, which have been selected. When vice-chancellors become occupied with the ranking of their universities, it is not difficult for them to figure out that they should push their researchers to score higher in the Thomson ISI – i.e. publish only in the selected journals. Often, this will result in the construction of incentives to support such ambitions. Academics, who spend their time writing books, textbooks, popular versions for broad audiences and so on are not helpful in this respect. Nor is good teaching, if we follow the criteria of the Shanghai list. As a steering tool the Shanghai list is therefore extremely selective: in order to use their time effectively, they should focus on the articles in the Anglo-American journals – be published and cited. Other activities are a waste of time, according to the logic of this steering tool.

From service to surveillance

It is obvious that a key actor in this economy is the Thomson ISI, which tracks publications and citations in a selection of scientific journals. We should therefore look at it more closely. The ground work was done by an American researcher, Eugene Garfield, who developed ISI as a service to researchers, but eventually sold it to the Thomson Corporation, controlled by a Canadian family. The Thomson ISI is a minor part of this business conglomerate. The British-Dutch company Elsevier – Reed operates a similar index – Scopus – and Google has Google Scholar. These provide services for researchers in the same way as Garfield thought ISI should do. However, the Thomson ISI has a key position in this market, when indexes are used for

steering purposes (Sivertsen, 2007, p. 4). It has, in effect, a global monopoly in this sector of the market, and thus is very influential in shaping the global research curriculum. One can note a historical change in the use of indexes since their introduction - from being a service for researchers to a tool for inspecting and monitoring researchers' work. In such a surveillance function, Thomson ISI seems to be more useful than other similar instruments. Google Scholar actually seems better as a service for us as Nordic researchers since it uses more sources, including texts in our own languages. However, Google has not created the same kind of hierarchies. Thomson ISI is therefore chosen routinely as a device for top-down surveillance – as we have seen globally, nationally and locally. We can see it as a part of a rapidly growing surveillance industry, which has been taken to a new level through the use of computers: The journal *Economist* writes that these companies are like banks, keeping information instead of money (The Economist, 2007). The development of advanced computers is a veritable revolution in this sector. Here, ethical issues collide with business interests. Yahoo demonstrated the level of ethics when they gave the Chinese regime information about a dissident using their services. Information is sold; for instance, Google is selling our use of its own search machine. Thomson ISI sells information about researchers' work to universities and governments, using open sources. A key issue in the academic context is how much control the academic profession has relative to the business interest. There is here a fundamental question concerning the control of the global steering of academic research: who sets the rules of the game.

New Public Management: projected and real

Another background of the emergence of these calculations is their political context. In recent decades, neoclassical liberalism has emerged as a guiding perspective for decision-making in the political sphere. It has gradually replaced the construction of a welfare state and equality as utopias for political decision-making (Ball & Larsson, 1989, Ball, 1990). Neoliberalism shows up in the policies of a wide spectrum of political regimes in various hybrid forms – from a start in Pinochet's Chile and Thatcher's UK and now in the present Chinese government's higher education policy (Mok & Lo, 2007). On the programme are privatisation, deregulation and the celebration of markets and a reduction in the power of political decision-making. The neoliberal utopia has an economic view – an ambition to see the economy as the only valid legitimization of something: Culture is good as long as it contributes to the economy and education is seen primarily as an investment in economic growth. Culture and education become commodities according to the neo-liberal utopia. They should preferably be run as businesses. The role of the academic profession is also influenced by this new context - a changed view of the meaning of a university. In countries like Australia, such policies were introduced in higher education in the 1980s. The aim was to transform higher education into businesses, operating in a market of students, not least selling education to students in other countries (Davies et al., 2006). The changed view of the idea of a university can be seen as being at the level of the big changes in the early 19th century, when the Humboltian university and the *Grandes Ecoles* were launched or when the modern university emerged, based on specialist research at the end of the same century (Wittrock, 1996).

We can also understand the recent changes in the rule of higher education in the context of the New Public Management, a special case within the general framework of neoliberalism. This philosophy has various components: Management theories from the private sector become the prototype for governing the public sector. Devices like the balanced score card are also

being used more and more as steering tools in the public sector, e.g. my university. There is also the idea of dividing large bureaucracies into smaller pieces – universities should be independent and university vice-chancellors and boards are given more power within the universities as if they were managers of enterprises. Competition should be introduced in the public sector by means of quasi-markets. Various forms of economic incentives have been introduced, e.g. performance-based salaries. The EPC could be viewed as one part of this general framework. It is a tool for intensifying competition on several levels. It is also part of the obsession of controlling performance through comparison and ranking, not least as information for the consuming citizen, who is faced with an accelerating number of choices, be it pensions or telephone or electricity. The EPC is also providing tools for producing incentives for the behaviour the rulers at various levels want to promote. It also supports management in their control of deregulated universities – you can check the output in spite of knowing nothing about the content of the research. It might also foster a business attitude towards research –focusing on the output – the publications and citations.

However, the real New Public Management is partly different from the utopia. It does not live up to all the promises. Not least there is disappointment in countries where these policies were implemented early on (Dunleavy et al., 2006). The growth of bureaucracies to manage the quasi-markets turned out to be expensive. Academics in the “neo-liberal universities” report, for instance, that they are occupied by endless paperwork (Davies et al., 2006). The virtues of working in the public sector have become eroded, faced with incentives linked to only one or a few aspects of the services. Increased pay differences seem to lead to conflicts and lack of coherent action. Small sections of the public sector become more occupied by the growth and glory of their own organisation and achieving a few goals rather than delivering service in a competent way: Dunleavy and colleagues (2006) write about a perversion of incentives. I think some of us are familiar with this. Bronwyn Davies and colleagues (2006) point to the general inefficiency as something behind their projection of the “fall of the neo-liberal university” (p. 316). Performance becomes suboptimal.

Post New Public Management: Digital Era Governance?

There are suggestions that a new trend is emerging linked to digital technology – a post NPM. Dunleavy and colleagues (2006) call it the Digital Era Government. Computers make central control much easier, since surveillance is much easier than before. Governments can reintegrate through digitalisation of administrative processes. They point to examples where governments take back control from systems of subcontractors in the US and the UK. They also point to the use of new technologies that make it easy for central administrations to create user-friendly solutions, for instance, in the case of taxation. This increased surveillance is a prerequisite of the services. One could see the attraction of computer-based measurements of publications and citations in this light. The need for costly and detailed evaluations of research, like the Research Assessment Exercise in the UK, will be less attractive to political decision-makers if they can be replaced by machines. There is another consequence too: You do not need any qualification in the specific discipline to judge the quality of the research – anyone can draw a conclusion. This makes it very convenient for decision-making and makes steering from a distance easier. The uniformity of the mode in which research is measured will also make it easy to compare. The tools used in the EPC seem to fit well into this context. In trying to understand the phenomena we are here discussing, we might add this perspective to

the previous perspective.

Some conclusions so far: One thing is that the control will be more centralised in an economy of publications and citations. The definition of the rules of the game will be made at the global level, national level or sometimes by the rulers of local universities, often using the same database. National governments decide about the systems through which they allocate control to the disciplinary elites, as in the case of Norway and Denmark, and to a transnational company in the case of Sweden. Here, what has often been called “free research” will be subjected a strict control system.

Quality constructions based on disembedded symbolic tokens

We can also approach the EPC from another angle. Quality is a word often used in this context. It is about judgements of the value of our work as researchers. The calculations are based on evaluations by researchers or publishing companies, i.e. the gatekeepers. The conclusion will be that the calculations mediate the judgements of the gatekeepers. However, the measurements shuffle the cards, which are played by the gatekeepers: it transforms the notion of quality. It results in something other than the quality judgements we make when we as academics evaluate research applications or dissertations or review articles. What is the significance of the calculating way of defining quality?

Firstly, they introduce a calculating unit. The points in the Norwegian system or a citation in ISI becomes the kilogram of the value of research? The creation of units and the calculating mode is typical for modernity, as Giddens points out. It is based on disembedding, i.e. creating standardised, “empty” dimensions, by breaking free from context. Giddens define it: “By disembedding I mean the “lifting out” of social relations from local contexts of interaction” (1990, p. 21). The result is, among other things, “symbolic tokens“, which can be “passed around” without regard to the specific characteristics of individuals or groups, that handle them” (p.22). Money is the most obvious case. Andersson (2000, p. 244 - 248) also saw the grading systems in schools as based on such an disembedding mechanism and grades as “symbolic tokens”.

A relation to economy emerges – citations are transformed through these calculations into “symbolic tokens”, making the disembedding possible, i.e. the same kind of category as money. One might think that the economy of publications and citations as something characteristic of modernity is something that undermines what looks like pre-modern traditions in academia, the guild-like collegial way of dealing with judgements: like masters judging journeymen and apprentices. Somewhat late, we might be entering an industrial stage in academia.

By means of the symbolic tokens, the original context is stripped and becomes something, which has a life of its own. Texts are translated into figures, ready for calculations: if you wrote something which is breaking new ground or if you just wrote the same as everybody else does, no matter – it is given the same representation if it is published in the same journal. If you are cited because you succeeded in publishing something stupid, which everybody must correct, it will be the same as publishing something that is brilliant. Disembedding makes the calculations qualitatively different from the old evaluations of research and researchers

made by peers, who read and judge the qualities of the work. The constructions of the machines are based on the formula of a mechanical application of rules that organise facts, which has been characterised as the novice stage in developing expertise. Traditional evaluations are based on optimising various aspects; some would refer to the Greek word “fronesis” for this kind of judging capacity. And finally: The “symbolic tokens” in the EPC can actually, and not just symbolically, be translated to another currency – money.

Fetishes

Something that increases the power of the measurements is their tendency to become fetishes. We can see from other arenas how results of calculations become, as it were, things, which are worshipped or are fear-provoking. As a fetish it will be something, which is often discussed or routinely referred to as a fact. It will be the basis for decision-making – you have to respect the fetish. It will be a fact, i.e. it has real consequences. Discussions around ranking can illustrate this. In almost every corner of the world, a crisis is proclaimed, when results from PISA or similar ranking machines are published. Such rankings produce endless discontent, inviting governments to repetitively introduce new political initiatives to cure the lack of success. Ranking as such even becomes a general cure for problems in the educational system, unrelated to diagnoses. If you rank something, it will be better. Two months ago, the Swedish minister of higher education launched the idea that the Swedish universities should be ranked. I suppose in yet another way, since they are already ranked. When the idea of ranking is so attractive to the political sphere, it is felt by university managements and adds to the direct influence of EPC as a basis for allocation of money. It sneaks into the academic culture as a key symbol – worshipped or hated or linked to anxieties, shame and respect. However, fetishes can lose their power. In the long run, it becomes difficult to maintain the belief when the magic does not work. Eventually, the proof of the pudding is in the eating: one of losers in the race to become the Democratic party’s candidate for the US presidency, John Edwards, picked up on the discontent after many years of massive testing of schools in United States: "A hog doesn't get fatter by weighing it." (The New York Times, 2007). The poor results achieved by US pupils in international testing – no. 29 in Science in PISA 2006 and similar results – after many years when public exposure to testing results was supposed to be a prime force for “world class education”, do not support the idea of the measurements as a cure. Test scores thus undermine the testing as a fetish.

Quality engineering

One can talk about engineering of quality: the construction of devices, which produce quality judgements. There is actually a machinelike character in the calculations of publications and citations. We can talk about the ISI machine and the Norwegian machine. We can also note that these machines manufacture different products, i.e. different texts are awarded quality. A key entry to power is to control the constructions of the symbolic tokens, i.e. the units, on which the calculations are based. The different constructions create different definitions of quality. The differences are actually striking. Quality becomes something very unstable – what is true in Oslo can be a joke in Uppsala. The engineering of the tools creates the differences.

The way they are constructed forms the outcome, which then has power to influence the practices of research. In the next part of the article, I will highlight and discuss some of the

consequences of the engineering of quality. The first consequence concerns how some research becomes invisible.

The principle of antidiagnostics

Scientometric researchers have pointed out a fundamental flaw in judgements based on measuring publications. They take a metaphor from the health sector and call it the principle of antidiagnostics: “while in medical diagnosis numerical laboratory tests can indicate only pathological status but not health, in scientometrics, numerical indicators can reliably suggest only eminence, but never worthlessness” (Braun, T., Schubert, A. 1997, p.177)

Scoring low does not mean that the quality is low – there are many reasons why academics doing good research do not score well in the citation measurements. One is the language they use, which also has geopolitical consequences. Writing a book about the evolution of the Swedish educational system in Swedish might be more appropriate than an article in English. But it makes it invisible in the ISI, beside some locals citing it. One reason for being invisible is related to geography: there are some spots on the globe, which are more influential than other in terms of where gatekeepers and networks around these are situated. The probability of being an invisible but good researcher is also related to this. As a consequence, there are a lot of hard-working academics, who publish very good material, which does not count. A lot of serious work is therefore not rewarded, and research areas lose their attraction. However, since most researchers want to survive, many will probably stop writing texts for journals, which does not count, and stop writing reports or publish for popular audiences. One has to write the things that are measured. The engineering of the measurements thus also shapes the relation between research and society.

The international is provincial

International publication is celebrated a lot. A question, which is not much discussed, is what is meant by “international”. Often, it will mean that an article is published in the selection of journals indexed by Thomson ISI. In the Norwegian system, there is also a selection according to which it is actually much better to publish internationally than in a Norwegian context. It follows from the list of journals and series in “pedagogikk” that none of the 36 journals, which give the high grades, are Norwegian and only one is Nordic. In the ISI case, there are no selected publications for an audience on the national level in the Nordic countries. Let us look at Thomson ISI. A calculation of the geographical distribution of the articles published in educational journals, which were indexed, give the following picture (Education + Educational research, 2006): US: 51.0, UK: 14.4. If we take North America (US + Canada) and the UK, the figure is 69.5% of all published articles. If we also include English-speaking Australia and New Zealand, it is 75.1%. The Nordic countries’ share of the articles is 2.8%. (all figures are provided by the bibliometric group at the Linköping University library).

If we look at the citations, the notion of “international” becomes even clearer: articles from North America and the United Kingdom get 82.7% of all the citations of articles published in 2003, measured in March, 2008. If we include English-speaking Australia and New Zealand, the figure is 89.1% (Education & Educational Research, 2003). These countries’ share of the world population is 6% (2007). The Nordic countries’ share here is 4%, which is not an extremely low share. What is called “international” is in practice what is published in journals completely dominated by a few countries with the same official language. International is thus

somewhat provincial. Generally speaking, we participate on the periphery. A Swedish social anthropologist has described the geopolitical map of his discipline in a similar way: the triad of British, American and French anthropologies as a prosperous mainland and other countries as an archipelago of islands (Gerholm, 1995, p. 159 – 160). The French do not count in educational research, except for a few gurus, who are translated into English. It is a question of a few countries and what they think are important issues and which research approaches or theories are fashionable. When our governments allocate resources based on publication in journals run by the North American or British research community, one might think that the latter would be happy to dominate us. However, I suspect that these journals have been given the task of internationalisation, about which the editors have been consulted, by their respective governments. I am not even sure they actually want their journals to have this task. If many countries join the EPC and if globalisation is to be fair, British and North American researchers will have only a small share of the articles in their own journals – I would think they would resist such a situation. Scientists in the US have actually expressed concern about the decreasing share of citations due to the competition from Asia and Europe – they think scientists in US are “less attuned to quantitative measures of output and impact than their institutional counterparts in other countries” (National Science Foundation, 2007)!

The language bias

The educational research journals selected for the ISI index are all in the English language except for three German. In the Norwegian system, all journals selected for the high grade (2) are in English. However, the Norwegian list is somewhat more international in the sense that it has a wider variation of languages among the journals selected for the low grade (1). The list of journals is also larger than in ISI. The share of citations in LOTE (languages other than English) is 0.7 in Elsevier-Reeds Scopus, 1.14 in Thomson/ISI and 6.94 in Google’s Scholar (Harzing & van der Wal, 2007, p. 8). If the quality of the texts we write is equivalent to being cited in journals indexed by ISI, we must draw the conclusion that only 1% of the text production in languages other than English have the quality to be worthy of being cited. The Norwegian model follows the same bias, i.e. it pays more to publish in English, but with less extremism. We ourselves are very much part of reproducing this bias by being users of English and by citing the English-language texts (as this text also shows). We are also victims of the bias, when our texts in our own languages are disqualified. It seems as if there is a pattern, where often countries like France and Germany provide social science with theory through highly elaborated and long texts, which are published as books – de Beauvoir, Bourdieu, Foucault or Habermas. When they are translated to English, a high number of articles is published in almost an industrial fashion. They then become a commodity in the EPC, although not for French or German researchers, except for the gurus themselves, but for their Anglo American colleagues and sometimes also Nordic researchers.

The slippery notion of quality

The notion of quality is given a very peculiar meaning in the EPC. One side of it is its lack of a common ground, i.e. depending on the choice of system, there are different definitions. Another side is the lack of an elaborated definition of quality. A third side is the lack of simple fairness. An example of this is that only the first author in an article counts, when ISI citations are used – fortunate for those with family names at the beginning of the alphabet. The background of these problems can be traced to the overarching aim – administrative

convenience is more important than the quality of the notion of quality. The word quality is routinely used in this context, which could be seen as a kind of pollution of the language. I will give an example of the lack of precision. In the Committee for Educational Research at the Swedish Research Council, there was a project where the Norwegian machine was converted into a prototype for use in Swedish educational research. Here, I use it to discuss the quality in a review of the international literature on the didactics for adults I wrote. This was published as a report from the Swedish Research Council. It was a 157-page text, but as a report it gives me zero in the Norwegian machine, i.e. indicates no quality at all. If I rewrite one of the chapters into an article and get it published in *Nordisk Pedagogik* I will get 1 point, not bad for one tenth of a text without value. However, if I instead write the same chapter in English and get it published in the *Journal of Curriculum Studies*, I get 3 points. I seem to have made a stupid effort to write for the Swedish Research Council, not least if they use this system to judge the quality of my work: since I did it for their series of reports, it was doomed to be of no value. If I, in relation to the Norwegian system, calculate the way I should use my time, it seems to be infinitely better to write a 15-page article instead of a 157-page report. In the ISI citation measurements, I get nothing when I publish, since I have to wait for someone to refer to my text. If they do, I can expect to wait 8.3 years before half of these citations are made on the average: The aggregated cited half-life for the category education and educational research is actually 8.3 (2006). By then, I will have been retired for 5 years. Since it takes at least a year or more from submitting an article until it is published, the text is actually older. One good thing with being published in a journal indexed by ISI is that my vice-chancellor can get a score for the Shanghai ranking, but he will have to wait a very long time for any reward from the national level, if research money is allocated based on citations. The best thing I could have done would be to move to Norway and publish the thing as an article in a British or American journal. Then I would get a lot of credit fast together with my department.

However, if I object to the projected (perverted, if we follow the language of Dunleavy et al.) incentives, I could use another rationality to base my decisions on. For instance: If I publish the report, I have the opportunity to elaborate my theme in depth and in detail in a way that is not possible in the form of an article, which is only a tenth as long. If I publish an article in *Nordisk Pedagogik*, I can count on having more readers. If I publish an article in English, I would choose one with a broad international interest in my topic and thus be accessible to an English-speaking audience – however, it is not indexed by ISI.

One can think about a tension here between the professional virtues of researchers and external instances and their use for researchers. As subcontractors, they are faced with contractors wishing to use researchers for various purposes, it might be legitimization of policies or control or developing practices and so on. Some of these will challenge the professional virtues, some will be in line with them. Researchers therefore often have to negotiate between their need of resources and the professional virtues. One aspect of these professional virtues is a notion of quality, which is a consequence of the training and progressive refinement through their work. I once actually tried to make such quality criteria explicit (Larsson, 2005). Academics' professional notion of quality is actually a constant aspect of various aspects of their work – doing research, supervising and evaluating articles, candidates for posts and research applications. This notion is challenged by the machine-made

quality definition. Researchers might have to negotiate with professional convictions about the need for longer texts to make a convincing line of reasoning. I would guess that academics do not adapt to the logic of the machine-made qualities, but rather negotiate them in relation to their professional virtues. However, there is a risk here of an erosion of the notion of quality in the long-term perspective. When we have adapted to the message that we should normally not write more than 15 pages, there will be some general loss in the quality of the disciplinary knowledge. When publications are measured, quantity of text production will take precedence. A concentrated elaboration of an issue will be rare – in spite of the fact that really influential academics in the social sciences have written books.

Changing power structures within universities

One effect of the machine-like modes of distributing resources is that the old local power hierarchies might be disturbed. New groups of researchers can gain a better position, when the power of faculty boards is reduced and machine-made points mean more. Successful publishing and elaboration of trans-national networks can make researchers less dependent on local networks. It can make researchers more autonomous in relation to their own management by being more adapted to the EPC on national or trans-national levels.

The rewards for publications and citations can therefore be very useful, if you are doing proper work, which is not appreciated by those in control of commissioned research or the university management. Maurice Kogan has pointed to the difficulties critical researchers face when resources must be generated from negotiations with business or public administration. Critical views of the organisation of society are often not appreciated by government agencies or industrial management, for which researchers work as subcontractors. Here, the EPC can actually be a way of generating resources for researchers, who want to enjoy independence from the local context if there are “second-order” incentives within the university, based on ISI. This might be seen as paradoxical in relation to a critique of the emerging measurements. There is also another mechanism related to the dialectic between subcontracts and the EPC: Scoring high on the EPC is one reason for decision-makers to give subcontracts to research groups. It is said that this is very much the case in health sector research. Here, there is a symbiosis: high scores generate more resources, which blurs the boundaries between “free” research and subcontracted research. In the latter case, there will be a concentration of resources into a few research groups and probably reduced chances of new ideas emerging outside of these groups to get resources.

Conservation, mainstreaming and widening differences

In all systems, the rewards are linked to established journals or publishing companies. The selection also gives the most established specialities a strong hand. New approaches, new areas, cross-disciplinary or not, will start up new journals, which will not be indexed for a long time. This creates a systematic conservatism in the reward system. In a comparison of the Norwegian machine and the ISI machine, one can note some startling figures. Of 46 journals focused on gender research and included on the Norwegian list, only 4% were included in the ISI (Sivertsen, 2007, p. 17). Of 37 journals, which were cross-disciplinary in social science none (0) was included in ISI (ibid). These research fields maybe did not exist 50 years ago, but they are not really new. One might conclude that it is not likely that universities would encourage such cross-disciplinary research areas.

Focusing on citations in the ISI machine will have a conserving effect, since citations show up many years after publication. As was already mentioned, the aggregated cited half-life for the category education is actually 8.3 (2006), i.e. you have to wait more than 8 years until half of the citations to your text have shown up in the indexed journals. Rewards will be very much delayed in such a system. Resources will be allocated to those who wrote something interesting a long time ago. If only recent citations are counted, a very small share of the citations of an article will be noted. Educational research will be treated unfairly in such a case, since it is a “slow” area in terms of citations. In the Norwegian system, rewards will be relatively quick – which would mean a fast allocation of resources to places where researchers have been successful.

These tools are introduced for steering purposes – when similar performance measurements are used in the business world, a key aspect is quick reporting. The balanced score card, which inspires my university nowadays, was introduced since “it gives managers complex information at a glance” (Kaplan & Norton, 1992, p. 71). They use the metaphor of pilots and their need for quick information. Using ISI citations in educational research will mean a delay of 10 – 12 years, probably more, from the design of successful research project until half of its impact is reported as citations. There is then a delay until the measurements result in allocation of resources rewarding the work done more than a decade ago. In the Swedish proposition, steering is supposed to be based on old successes – it is puzzling that this aspect is not discussed critically, since it is the most prominent issue when you are designing a steering system. This is really looking back and actually putting a brake on innovation and change. Since the national system is an automatic machine, decision-makers cannot use information for wise decisions – there are no pilots, only autopilots. Dahllöf is cited in the Swedish government bill (SoU 2007:81, p. 58) as saying that it is stupid to subject quality to a mechanistic formula, since it is counter-productive in relation to the deeper reasons for evaluating quality. The Norwegian machine is different in respect to the use of old successes – the delay is shorter. My conclusion is that not only old persons like me should move to Norway or Denmark. Young researchers should choose Norway when they are young and if they have been successful they might return to Sweden when they are approaching old age.

Changing the national geography of research

A reason for introducing the EPC in Sweden is to change the balance between big and small universities – to concentrate the resources to a few places. There is a strong tendency to think that big is beautiful. When this way of thinking is translated into ambitions to make universities bigger through mergers, it can be seen as puzzling. The top-ranked universities are not big in terms of student numbers, but they are rich in resources. On its website, Stanford lists less than 15 000 matriculated students – both undergraduate and graduate. Anyway, it terms of resources for research, Stanford is certainly big. In our countries the ECP will change the balance between regions, i.e. universities in the big cities will get more resources, while the rest of the countries will get less. The introduction of EPC is a decisive choice in a long battle about regional politics. Those who have argued for higher education as a tool for developing a balance between various parts of the country will have lost. Calculations of the impact of the Swedish system indicate that it will be very strong (SoU 2007:81, p. 307). The youngest universities will lose brutally on citations as a basis for allocating resources. A possible effect will be a division into universities with only teaching and universities with both teaching and research, which is very much the case in the US. As ranking is based on research, only those

universities with research will be able to gain a reputation through ranking, at least through the Shanghai list.

The calculations will also give advantages to universities heavy in technology, science and medicine (SoU 2007:81, p. 307). Social science and the humanities will become a burden. This seems to be a consequence of a citation-based system. In calculations comparing the current allocations of resources in Sweden with one based on ISI citations, there are very pronounced differences: the winners are special institutions for technology, medicine as well as universities where these research areas dominate. The future economy of citations might therefore change the composition of the kind of research, which is supported, i.e. technology, medicine and science will be the winners and humanities and social science the losers.

The man behind the government investigation actually told the board of the Swedish Research Council that they would have to soften the effect by reducing the weight of citation-based distribution of research resources in order to avoid resistance from universities. Such effects are due to another effect – the exaggeration of success. De Solla Price, more or less the inventor of bibliometrics, argues that citations lead to more citations – a Mattheus effect (de Solla Price, p.226). This increases difference. Success in these measurements can in some cases be transformed into prestige, which can lead to more resources from resources that are not directly linked to the EPC. We could perhaps talk about a Mattheus effect in this respect too. Another effect may be a widening difference between those whose publications are recognised and those whose publications are not: the former might get more time for research, while the latter will be more or less 100% teaching. This would constitute a polarisation between teaching and research – towards a specialisation.

Polarisation within disciplines

In the Swedish proposal, where ISI is supposed to be used to compare the citations of researchers within the discipline, researchers or research groups, which have a strong position in the selected journals will gain. Because of the delayed effect, to be successful, you must already have a strong position among the researchers, who publish in these journals, i.e. generally speaking in AngloAmerican research communities. Since different subareas within education have developed completely different publication routines, this will create large differences between subareas, which will increase because of the EPC, and those, which will stagnate. ISI indexes one journal on early childhood, none concerning vocational education or training and the only journal focused on working-life training, which is indexed, is about management training. These areas of research are prominent in the Nordic countries, but also huge societal sectors. In the ISI selection in education, none of the journals on gender issues are included. As I have already pointed out, only a few journals in gender studies outside of educational research, are selected. Do not research women, workers or young children if you want to score in ISI. On the other hand: One journal, which ISI selected, is about teaching geography in higher education and one is about teaching hospitality and tourism, which might be decent research, but as societal phenomena they are maybe not on the same scale as gender, work-life and young children. Thirteen of the indexed journals are about higher education. In the EPC, this will actually make networks of researchers in vocational education and working-life training invisible, and frozen out from certain forms of research funding and academic prestige, since their journals are not indexed. On the other hand, those concerned with teaching geography or hospitality in higher education will get easy access to a quality mark, if not a lot

of researchers have already been attracted to this area. This certainly creates incentives to choose what researchers should focus on. It forms the research agenda. The disproportions are striking.

The selection of invisible colleges

The notion of invisible colleges (de Solla Price, 1986, p. 56 - 81) can take us further in understanding the consequences. Invisible colleges was initially a notion used to describe the communication patterns between researchers in the 17th and 18th centuries: it took the form of mail-based networks. The natural scientist, mostly known for Boyle's law, actually invented the term. We know, for instance, that Linneus in the 18th century knew and exchanged letters with a huge number of colleagues in every possible corner of the world – he was part of an “invisible college” (Wallenquist, 2007). They are invisible since they do not need to be in the same place. The notion of invisible colleges is still useful in our time, i.e. networks of researchers, who read each other's texts, attend the same conference sessions and so on. The world of research is a human world of social and intellectual relations, with its limitations. Researchers do not read everything that could be relevant – they only have a limited amount of time. So, in spite of the developments since Linneus' time, communication is limited. We can assume that invisible colleges are based on research interest and geography. A projected consequence will be that many researchers in countries like ours will develop networks with researchers in countries that dominate the highly graded academic journals and neglect other possibilities. They might also engage in research issues that are hot in these dominating countries. One of the evaluative criteria editors often use is if the article will contribute to current discussions – i.e. in countries, where editors and reviewers are normally recruited. Another consequence is the freezing out of journals, which do not give rewards. Journals like Nordisk Pedagogik or various national journals in LOTE might find it difficult to get good texts. It also follows that it is potentially more rewarding to participate in an American or British conference than in a Nordic conference, since you can hope to make useful contacts among those who will create your own wellbeing in the future. This is a way of being a member of useful invisible colleges.

Can anything be done and should it be done?

I think most scholars ask themselves if the EPC is good or bad. In my environment there is a tendency to think it is bad. Reasons vary, but I think we must step back and take a cool look at the phenomenon. Good and bad depends on the perspective, but I also think the phenomenon is contradictory. It is not bad or good for everyone: it produces winners and losers.

Bronwyn Davies et al. (2006) have noticed little resistance among scholars against the neo-liberal policies. Based on interviews with academics from several countries, they claim that academics have instead developed a neo-liberal subject, an entrepreneurial academic. When the police force in Sweden was confronted with similar calculation policies, measuring their activities, there was a general uproar and the Swedish head of the police force had to resign (Dagens Nyheter, 20071206). Academics are more docile. Faculties and disciplines are also winners and losers, which might have split resistance. Resistance is divided. I think we will have to live with these systems. We might be able to resist their expansion. Their influence on the big cake of resources is still limited. Can we do more? I think it is important to resist

fetishism: to remind ourselves of more elaborated notions of quality and other consequences of a reduced notion of quality. We will certainly play the game, if we want to survive, which will make it difficult to keep our minds clear.

On another level, we must look at the trans-national level: how can we influence the domination patterns. Should we only read the manual for the machines or should we act as engineers? Should we influence the rules of the game? My personal view is that it is a good thing to have audiences at the global level. I do not think that the celebration of a closed national research community is a solution – it makes the research not only provincial, but probably also parochial. My choice is to have a vision of a fair global network for research. This is a very difficult task since we ourselves are very much part of the problem, we reproduce the power structures almost every time we write (like my own references!). However, one task is to persuade editorial boards to think internationally. I think we must be more active in taking positions in the invisible colleges, not least on editorial boards. We should use these positions as tribunes for a critique of the imbalances and for review criteria, where a fair global perspective should be used. This does not mean that it is about promoting Nordic researchers; rather, it is about having a broader perspective. I have experimented with two editorial boards, dominated by British researchers. In one case, I calculated the number of articles and citations from various countries and criticised the domination patterns twice in yearly evaluations of the volumes. The second year, it triggered a discussion on the editorial board. In the other case, I took it upon myself to argue for an international perspective when the journal was in its start-up phase. On the other hand, there have been discussions about a theme volume focused on the US for marketing purposes in the same editorial board.

We should also hope that the movement for open access publication will eventually be something that promotes a change towards a less provincial perspective. A success for open access would be a historical change, it would widen the free access to research results dramatically. From being a privilege for a small share of the global population open access make it possible for researchers in poor countries to read articles. However, open access is about communication and might not influence the control systems for allocation of research money. On the one hand, growing numbers of readers across the continents might change something – hopefully a changing notion of the audiences for whom texts are written. However, the open question is whether this is recognised by the rulers of the machines we have talked about. It is probably easier to influence our colleagues who form “authority lists” than to influence Thomson ISI in this respect.

However, one important task might be to enlighten everyone about the problems of using the notion of quality in this context – the erosion of the meaning of a word, which was once used to denote something precise and not something clumsy, crude and unfair. Mind your language!

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