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Cultures of Knowledge – Gender – Excellence

Policies around more presence and an increase of participation of women in science, particularly in the natural sciences, engineering and technology, date back a long time. Today, we can build on experience, and we do also see additional and new efforts in the area. Such new efforts are not a simple result of long time stories. Rather, we do also see more profound changes in policy, evident in the rhetoric and the philosophies which inform equality policies. These days, there seem to be three dominant ideas behind policies to advance equality in science.

- **Justice**. This is the traditional quest for gender "equality", or "equity" or "equal opportunities", or – as in France and in some organizations – "parity", which sets an ethical and political goal in specific cultural and legal contexts.
- **Demographic change**. This is the more recent and, due to its mainstream appeal, very powerful trend, present in the title of the OECD workshop, and central to initiatives in the U.S.[2], or in South Korea, Japan, or in the OECD[3], which refer to a lack of "human potential" or "capital" in an aging society, with a lack of skilled workers, or with a lack of funding for pensions, to justify policies directed at the advancement of women in science.
- **Efficiency**. In private enterprises, it is the idea of "diversity", meant to alter the capacity of the workforce, that often inspires projects which specifically target the advancement of women, e.g. female engineers[4]. Here, policies focus on the intrinsic goals of the field or organization they address. In the area of science, another code for efficiency is "quality", or "excellence".

When framing a policy, and despite some tendencies to avoid explicit references to justice or equality, it is important to focus on all three aspects, rather than trade one for the other.[5] But while justice is an overreaching ethical appeal, and

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[2] Presented at the workshop by Stephanie Monroe, U.S. Government Department of Education.

[3] See conference proceedings publsihed in: Women in Scientific Careers: Unleashing the Potential. OECD 2006.

[4] E.g. the "Women in Golder Initiative (WIG)" of Golder Associates, a Canadian engineering company, presented at the workshop by Daen Kelly.

[5] Fear of confrontation and allergic reactions when justice is invoked, as the traditional feminist quest. This issue calls for a strategic decision on framing (which terms to use, which example ...), but research also shows that the avoidance of any reference to values and overreaching goals such as justice and equality does not last as long ...

demographic change is a general challenge located somewhat outside the realm of science, excellence is an integral driving force of science itself. This makes it particularly interesting to focus on what exactly we mean when we take about "quality", or "excellence", and what this means for gender in the sciences. In this short presentation, I will argue that any policy interested in gender equality has to focus on quality, just as any policy interested in excellent science needs to take gender into account.

I. Myths around Science

As a starting point, it seems necessary to remove some common myths around science. What seems most important is that the more science, and particularly the more the natural sciences, technology and engineering, perceive themselves as neutral, the less they will see the need for change.

First, and contrary to an image of science as a realm of geniuses generating fascinating ideas, science is a **social activity.** Briefly, and following an argument from German gender theorist Sabine Hark[6], in the sciences,

- communication is not universal, but socially selective,

- choice of theory is not autonomous, but socially framed,

- results are not objective, but socially negotiated.

To be even more precise, science is not at all a neutral field, but a field of combat, a "place of tournament" (a term from sociologist R. Merton), a political field[7]. The more this is accepted, the easier it will be to challenge seemingly given assumptions of "excellence" and to implement fairness requirements in science, and the more awareness will be created for soft skill requirements to advance a career in science as well[8].

In addition to this, and contrary to the myth that science is one clearly defined area, with a defined set of actors, and working with one rationality, science is a play which, to use a concept developed by Bailey[9], is put on **three stages**. There is

- the frontstage. Here, the decisive code is quality, and the rhetoric is „equality". It is where mission statements work, speeches are made, and regulations are passed, but is is not all there is to the realities of science.
- the backstage. Here, the lead idea is excellence, or at least quality, but the rituals enforce conformity, "schools", and disciplines. It is where people are

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[6] Sabine Hark: Dissidente Partizipation, Frankfurt/M: Suhrkamp 2005.

[7] Part of training in CEWS is thus directed at understanding the political side of the academy, to also prepare for posioned and non-positioned leadership. Another part should be dedicated to intervention strategies.

[8] Such requirements have to be met by both women and men, and by both those seeking a career and those who decide about career positions.

[9] Bailey, Frederick G.: Morality and expediency: the folklore of academic politics. Chicago: Aldine 1977.

recruited and hired, where funds are allocated, where work gets published or appreciated.

- the basement. Here, the informal rituals take over, the strong traditions, and the urgent needs to constantly distinguish between us and them, and the method is „othering". This is where gender stereotyping and gender bias, which excludes women and some men and which excludes issues of interest to those who traditionally do not define research, persist.

If we understand those different stages of science (the official one, the reality in institutions, and the workplace practices behind the scenes), we see that change requires transformation beyond the frontstage.

Finally, and contrary to the myth that science is gender neutral, **science** can be described **as inherently gendered.**

- With its effects on practices, terminology, concepts and images, gender is one important category of knowledge.[10]
- „Gender" captures male/female-disctinctions, but cannot be reduced to sex, but is closely linked with ethnical, sexual, physical ability, family life, age and religious disctinctions.
- The strong traditions which shape our perception of academic disciplines, fields of research and professions tell us that they are stereotypically „male" („hard" ...) *or* „female" („soft" ...).
- As an effect, „quality" as the lead criteria (or „code" of science) is based on notions of male objectivity, or rationality versus female-feminist-genderstudies (you name it ...) subjectivity, one-sided-ness or irrelevance.

In sum, science is a social activity, on different stages, which has a gender dimension regarding its contents and methods, the perception of science itself, and its main features, including any understanding of quality.

II. Cultures of Knowledge

Science is not a monolithic bloc. Rather, research is done in specific and sometimes very different cultures of knowledge, related to location and to content, or discipline, and field. Such different **cultures of Knowledge** have three dimensions:

- a **personal dimension:** Who is present, who sets the tone, who decides, who counts?
- a **material dimension:** Who has a permanent position, who gets ressources?
- **a quality dimension:** What is present, what counts, what is *excellent*?

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[10] Re the gendered nature of science itself, it is ambivalent to say that "science is not gender neutral", because this may be interpreted to refer to an essential difference between men and women with respect to understandings of science, an assumption strongly disputed in gender studies, and impossible to uphold when taking diversity into account.

Any policy and any set of instruments to change these cultures needs to address all three dimensions.

1. Cultures of Knowledge: the Personal Dimension

The personal dimension of any scientific context addresses

- access of women and other „others" to science[11]. Here, policies are about fair and diverse access to science policies, particularly: evaluation panels, quality assessment, distribution decisions,
- presence of different role models in science.

It seems important to note that change occurs only with more than just exceptional presence of those nor present before on one level in one place, who are, in most cases: women. Policies need to move **beyond the exceptional woman.** Closely related to that, work-life-balance policies need to move beyond „the mother", and equality policies cannot be reduced to work-life-balance-schemes.

2. Cultures of Knowledge: the Material Dimension

The material dimension of cultures of knowledge addresses

- access of women to distributive decisions, e.g. regarding the presence of different people on committees, a target of, e.g., EU policies or Swiss NSF policies[12],
- gender-sensitive criteria of distribution, e.g. the integration of such requirements in guidelines for funding,
- fair and transparent procedures of distribution, e.g. information campaigns and recognition of requests not only from those already associated with "grand" researchers or schools[13].

Regarding distribution of ressources, change is more likely to occur when discrimination starts to cost money. Or, put differently: Change occurs when science really profits from equality, beyond an ethical sense of feeling better, or working towards more justice in the field. Therefore, it is an important indicator of change if mainstream actors in science fund equality efforts[14]. Examples include

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[11] There are many projects which target access, either with a focus on decision-making of girls, students, or graduates, or with a focus on decision-making in selection and hiring procedures, e.g. Anstoß zum Aufstieg (Encouragement to Advance), coordinated by CEWS in Germany, presented at the workshop by Isabel Beuter.

[12] Presentation by Maya Widmer, Equal Opportunities Research Funding, Swiss National Science Foundation.

[13] At the workshop, Valerie Davidson, Univ. of Guelph, and Wolfgang Polt, Vienna, emphasized this point.

[14] Additional aspect: it is important who gives the resources. E.g. the German networking and research centre CEWS (Center of Excellence of Women in Science) has been funded by the Ministry for Research initially, and has been taken over as a subunit of the Leibniz Association, one of four independent research organisations in Germany, next to associations called Fraunhofer, Max-Planck, and Helmholtz, presented at the workshop by Isabel Beuter, more at www.cews.org. Also compare work in Canada at www.ccwestt.org.

- attempts to honor gender competence in research in *EU GenderActionPlans*[15],
- *budgeting criteria in some German state-university funding contracts*, which allocate funding based on the indicator of advancement of women.

Generally, fair distribution of resources for science is always based on attributions of quality. Therefore, it requires a different sense of quality.

3. Cultures of Knowledge: the Quality Dimension

In science, the quality dimension is key. It informs decisions affecting the personal and the material dimension, and drives all serious allocation of resources and recognition. This is why we need to clarify what exactly "quality", or, in competitive environments, "excellence" means.

In the literal sense of the term, excellence means, as in "to excel", that something „sticks out", which implies visibility, which refers us to transparency. More precisely, the quality dimension addresses

- what is „relevant". Therefore, change will occur when we **systematically check whether research is gender relevant**, and whether methodologies, and staff are up to the task to define and find that. Examples include a project by Fraunhofer Institutes in Germany *„Discover Gender"*, or the German Federal Government *Working Tool „Gender Mainstreaming in Research"*[16], the Guideline Routing Check List "How does Gendergain a footing in research?" of the Austrian federal Ministry of Education, Science and Cultural Affairs[17], the use of e*quality indicators* of Finnish funding system, efforts to integrate gender in research on technology for young & old, male & female etc. users, or in conceptual efforts to define „life sciences" beyond a medico-technical understanding as a dialogue between biology and society, thus integrating social and cultural sciences, and thus allowing gender research to enter the scene.
- what has scientific **quality**. It is evident that change occurs if quality is attributed beyond bias and blind spots. To do so, some strategic aspects may need to be taken into account.

III. Tribes and Territories: **Strategic Aspects**

„Quality", in science, is attributed in and to **academic tribes** on **academic territories**, as described in the work of *Becher and Trowler*[18].

Academic tribes constitute themselves by asking

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[15] EU policies, including the results of evaluation of gender action plan activities, were presented at the workshop by Johannes Klumpers, European Commission, DirG for Research.

[16] More information (in German) www.genderkompetenz.info → Wissenschaft.

[17] More at http://wwwapp.bmbwk.gv.at/womenscience/.

[18] Becher, Tony/ Paul R. Trowler: *Academic Tribes and Territories: Intellectual Enquiry and the Culture of Disciplines*. Philadelphia: Open University Press. 1996, 2d ed. 2001/2003.

- on the front stage: who is the best?
- but on the back stage: who is one of us and who fits?
- and in the basement: do we live the same idea of "the" scientist?

Academic tribes thus emphasize differences in life priorities, including lifestyles and the allocation of time, using an image of a profession as a lifestyle ("Beruf" as "Berufung"), with no other "private" obligations to interfere with scientific endeavours.

Academic territories are imagined spaces, with well-guarded boundaries, which are inhabited by excellent people, who really figure as

- „the genius", „the philosopher", „the literature expert",
- „the lawyer", „the political scientist",
- „the doctor", „the life scientist", „the engineer".

Academic territories shape differences of disciplines, including images prevalent in different disciplines of working in solitude or working as a team player.

More precisely, **academic tribes ...**

- live long traditions of exclusion, which result in gender affinity in recruiting & support, and in exclusive networking & deals („Seilschaften")[19]
- use subtle (and again: inherently gendered) strategies of inclusion, then accommodation, then marginalization, which result in „boy´s clubs" & „women´s corners"[20], and position gender research as a women´s thing, an „extra" which requires „special funding" and so forth.

Many admit that such tribes **suffer from slow innovation, little fresh talent, little responsiveness to outside demands, little interaction with others.**

In addition, academic territories ...

- are scientific, and as such are always "imagined" communities *(and ask yourselves: what is your image of „science", „technology", „the scientist" – and how gendered is it?)*
- are formed strategically, from idea to institutionalized discipline,
- with such strategies constantly using „boundary work" (a term from *Gieryn*[21]), as a constant thrive to define „us" as (good) science and „them" as other, which results in gender research & women in science positioned as the

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[19] Most projects on gender equality do focus on networking, including networks of networks like the European Platform of women Scientists EPWS. What is decisive are however deals, usually struck on the back stage or behind the scenes, at the bottom.

[20] In addition, such processes result in exclusion of those men who do not fit the „boys clubs" image and/or who do not participate in exclusionary rituals, do not strike deals at the cost of others etc.

[21] Gieryn, Thomas F.: *Cultural Boundaries of Science: Credibility on the Line.* Chicago: University of Chicago Press, 1999.

„other", marginal and/or separate again, and the mainstream remains untouched.

In mainstream science policy debates, most admit that such territories **suffer from inadequate shape for current problems, little innovation, and some competitive disadvantage.** Therefore, change is needed.

IV. Change

Academic tribes & territories **affect** the personal, material and quality side of the sciences. However, the quality of science suffers from its inherent closures. Most scientists and science policy makers would agree that disciplines are maybe not sufficient locations to address the problems research targets today, and most would also agree that traditional structures or recruitment and advancement schemes may inhibit innovation, and endanger excellence. In addition, the *common good* „knowledge", more obviously crucial for humankind on this planet than ever, is not produced and distributed fair and just.

Taking this into account, any policy to **create** (gender) **equality** needs to target (gender sensitive) **quality**. Such policies, to set effective impulses towards change, and towards better science, need to be shaped as adequate as pssible, thus address different tribes and different territories.

At least, **academic tribes** need to

- ... accept the relevance of gender,
- ... change rituals[22], e.g. erase the „myth of presence" in the office or lab (and the implied need for care back home ...[23]), and diversify our images of „the scientist",
- ... value the presence of diverse biographies in research[24].

Academic territories have to

- ... clarify their idea of „quality": use, marketable goods, justice, knowledge ...,
- ... apply transparent criteria to attribute quality,

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[22] This may include projects like those described in the U.S. American NSF report "Beyond Bias and Barriers: Fulfillingt the Potential of Women in Academic Science and Engineering", published in 2006, part. Ch. 4 (http://www.nap.edu/catalog/11741.html). The presumption is that the traditional network (or tribe-based) approach does not guarantee for quality, and to make your investment pay, you want better mechanisms for selection. Such approaches reach male faculty as well if they are either required, or come with ressources. In Canada, institutions offer compulsory "information sessions" (because scientists need no training) for all selection positions, if wanted, one-on-one (to avoid shame etc.).

[23] The OECD focuses on this in the project "Babies & Bosses", presented at the workshop by Dirk Pilat, OECD; with more information at www.oecd.org.

[24] E.g. project in Sweden to have university administrators identify future leaders to be trained towards such positions, or potential identification procedures (each leader has to identify several talents, including a minimum of women).

- ... interact and communicate, e.g. *be visibly excellent not as one genius, but as the team you really are!*.

Overall, the personal, material and quality dimensions of science, on all three stages of science, need to be altered. This is simply because *we want more talent, more innovation, and more quality!* Some may argue that demographic change forces us to use all talent available. Some may argue that diverse research teams produce better results[25]. And, as *Suzanne Fortier*[26] explained in Ottawa in 2006, some may know that science is fun – so all should have the opportunity to join it.

[25] While St. Monroe referred to the Catalyst study on effects of diversity in companies from 2004 (The Bottom Line: Connecting Corporate Performance and Gender Diversity, www.catalystwomen.org), Klumpers emphasized the work done by Smith, Nina/ Smith, Valdemar/ Verner, Mette: Do Women in Top Management Affect Firm Performance? A Panel Study of 2500 Danish Firms, (August 2005). IZA Discussion Paper No. 1708 Available at SSRN:http://ssrn.com/abstract=780910

[26] In the introductory remarks, representing NSERC.